I C E

TV 1050

TV 2050 , TV1040

FARBFERNSEHER

Service Manual

TV 1050 – TV 2050

Netzteil mit Trs. 2SB820

Netzteil mit IC STR 41090

ITS Service D. Radeck GmbH

Zentralwerkstatt und Ersatzteildepot
für ITS- und ICE-Produkte

SI **Wichtig für die Werkstatt!**

Nummer: 13

Sachgebiet: Fernseher

Datum: 25.01.1989

Lademannbogen 49
2000 Hamburg 63

Zentrale : (0 40) 53 89 90-0
Technische Auskunft: (0 40) 53 89 90-42
ET-Bestellung : (0 40) 53 89 90-44
Rep.-Abwicklung : (0 40) 53 89 90-45
Telefax : (0 40) 53 89 90-48

Service Information

Betrifft: Netzteil mit Transistor 2SD820

Verteiler: Intern / Extern

H I L F E Z U R F E H L E R B E S E I T I G U N G

Gerät schaltet erst mit Verzögerung auf Stand by

R 913 ändern in 390 K - TV 1040 TV 1050 TV 2040 TV 2050

bzw. in 330 K - TV 1045 TV 1045P TV 1055 TV 2045P TV 2055

Netzteil ohne Funktion bzw. zeitweise keine Funktion. LED leuchtet nicht auf.

C 911 oder C 909 erneuern

Netzteil keine Funktion. LED leuchtet nicht auf, wenn das Gerät sehr kalt ist (+ 10 - 15).

C 408 ausbauen und an Testpunkt TP 403 hinter dem Relay anlöten

ITS Service D. Radeck GmbH
Zentralwerkstatt und Ersatzteildepot
für ITS- und ICE-Produkte

SI Wichtig für die Werkstatt!

Sachgebiet: Fernseher

Nummer: 33

Datum: 14.11.1990

Lademannbogen 49
2000 Hamburg 63
Zentrale : (0 40) 53 89 90-0
Technische Auskunft: (0 40) 53 89 90-42
ET-Bestellung : (0 40) 53 89 90-44
Rep.-Abwicklung : (0 40) 53 89 90-45
Telefax : (0 40) 53 89 90-48
Telex : 217 40 97

Service Information

Betrifft: Netzteil mit Transistoren
TV 1040/1045/1050/1055

und Diverse

Verteiler: intern/extern

Hilfe zur Fehlerbeseitigung

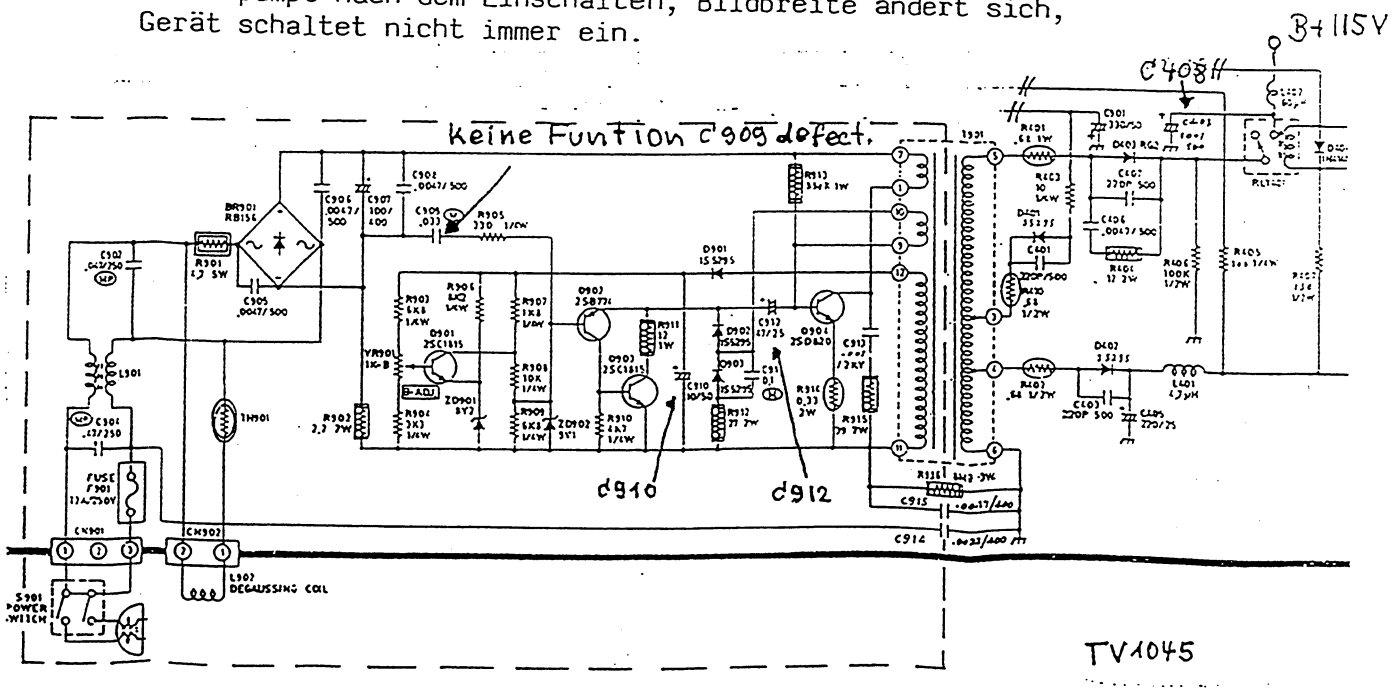
Fehler:

Betriebsspannung B+ ist zu hoch, ca. 150 - 180 V. Original ca. 115 V.

Folge:

C 408 100µF 160V/R123 7,5 K 1W (Beizeichnung TV 1045) defekt.

Oder: Gerät pumpt nach dem Einschalten, Bildbreite ändert sich,
Gerät schaltet nicht immer ein.



Abhilfe:

C 912 47 µF/25 auswechseln. (evtl. noch C 910 10 µF 50 V)

Fehler: Schwirr-Geräusche des Schaltnetzteiles bei "Stand by" Betrieb

Abhilfe: C 910 im Schaltnetzteil in 47µF/63V ändern.

Kundendienstleiter Dieter Radeck

ITS Service D. Radeck GmbH

Zentralwerkstatt und Ersatzteildepot
für ITS- und ICE-Produkte

SI Wichtig für die Werkstatt!

Nummer: 15

Sachgebiet: FERNSEHER

Datum: 16.02.1989

Lademannbogen 49
2000 Hamburg 63

Zentrale	: (0 40) 53 89 90-0
Technische Auskunft	: (0 40) 53 89 90-42
ET-Bestellung	: (0 40) 53 89 90-44
Rep.-Abwicklung	: (0 40) 53 89 90-45
Telefax	: (0 40) 53 89 90-48

Service Information

Betrifft: TV 1040/2040 mit Netzteil STR 4109
TV 1o5o/2050 mit Netzteil STR 4109

Verteiler: Intren/Extern

A C H T U N G : Änderung betrifft nur die Fernseher, die vor Juni 1988 hergestellt sind. Ab Juni 1988 sind die Fernseher vom Werk geändert, d.h. Pkt 5 des IC's ist angeschlossen.

Fehler : Netzteil ohne Funktion.

Ursache : IC 4o1 STR 41o9o, Q 4o1 2 SC 1317, R 4o4 o,47 Ohm, C 4o5 15o Ohm, C 412 o,22 µF sind defekt.

Abhilfe : Folgende Bauteile müssen grundsätzlich alle ausgewechselt bzw. geändert werden. Zusätzlich müssen noch 2 Bauteile an Pkt 5 IC 4o1 angeschlossen werden.

Erneuern Sie :

STR 41o9o - IC 4o1 Wärmeleitpaste entfernen (keine neue verwenden) Glimmerscheibe prüfen

2 SC 1317 Q 4o1

o,47 Ohm R 4o4

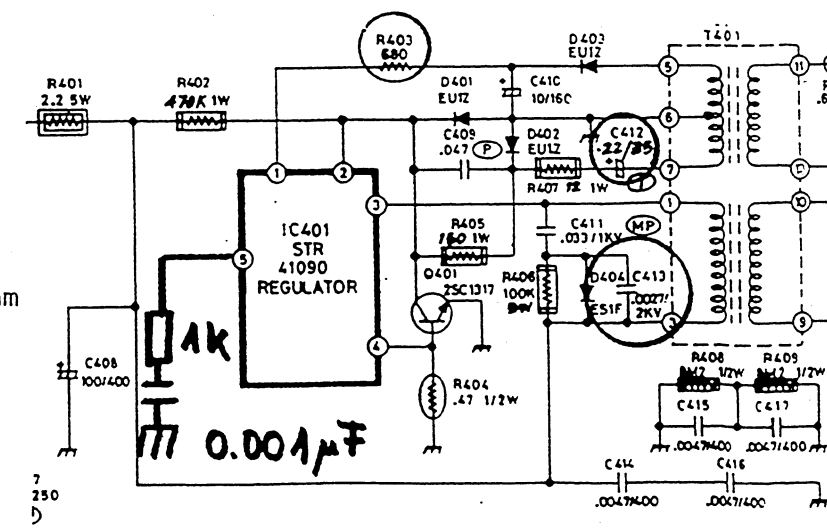
15o Ohm R 4o5

47o Ohm R 4o3 (Wert geändert)

1o µF 5o V C 412 (Wert geändert)

1 nF 2 KV C 413 (Wert geändert)

Zusätzlich an Pkt 5 vom IC 4o1 1 K Ohm in Reihe mit 1 nF gegen Primärmasse einbauen.



Reparatur Tip : Immer C 41o 1o µF 16o V überprüfen (" Elko ausgebeult") Gerät schaltet schlecht ein. Brummen im Bild C 4o9 defekt

Kundendienstleiter Dieter Radeck

P.S. : Änderung auch bei nicht defekten IC 4o1 durchführen. R 4o3, C 412, C 413, 1 K Ohm 1 nF Pkt 5 IC 4o1

ITS Service D. Radeck GmbH

Zentralwerkstatt und Ersatzteildepot
für ITS- und ICE-Produkte

SI Wichtig für die Werkstatt!

Sachgebiet: TV

Nummer: 5

Datum: 25.8.88

Lademannbogen 49
2000 Hamburg 63

Zentrale	: (0 40) 53 89 90-0
Technische Auskunft	: (0 40) 53 89 90-42
ET-Bestellung	: (0 40) 53 89 90-44
Rep.-Abwicklung	: (0 40) 53 89 90-45
Telefax	: (0 40) 53 89 90-48

Service Information

Betrifft: TV 1040 / 2040
TV 1050/ 2050

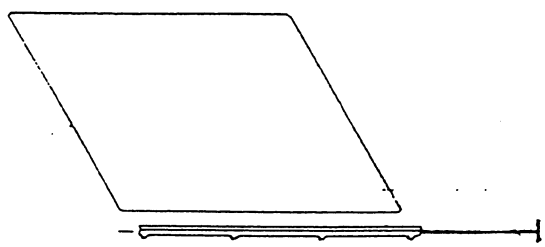
Verteiler: intern / extern

TECHNISCHE ÄNDERUNG

Gerät schaltet von alleine ab (auf Stand By) ODER DEFEKTES IC M491bb1

Glashalter (Metallschiene Front) mit einem Kabel an Masse legen.

Bei jeder Reparatur, da statische Aufladung



Horizontale Bildlage nicht o.k.

C 137 3,3 nF IC 101 (Pkt 22 136/137) gegen 2o nF tauschen

" H - Hold " neu einstellen.

Bildbreite zu groß

C 437 2,2 nF tauschen gegen 1,5 nF 2 k (Q 403).

Kundendienstleiter Dieter Radeck

ITS Service D. Radeck GmbH

Zentralwerkstatt und Ersatzteildepot
für ITS- und ICE-Produkte

SI Wichtig für die Werkstatt!

Nummer: 6

Sachgebiet: TV

Datum: 25.5.88

Lademannbogen 49
2000 Hamburg 63
Zentrale : (0 40) 53 89 90-0
Technische Auskunft: (0 40) 53 89 90-42
ET-Bestellung : (0 40) 53 89 90-44
Rep.-Abwicklung : (0 40) 53 89 90-45
Telefax : (0 40) 53 89 90-48

Service Information

Betrifft: Fehler
TV 1040/1050

Verteiler: intern/extern

F E H L E R : TV 1o4o TV 1o5o TV 2o4o TV 2o5o

Keine Farbe bzw. flackert

C 337 + C 341 oder Q 372 oder C 34o oder C 349.

Kein Secam Q

Q 3o4 + C 329

Bild - Strich

C 149 oder C 423 Pkt 2 IC 4o2

Rot fehlt

C 315

Bild läuft durch Zeile verzerrt

C 153 3,3 µF Pkt (IC 1o1

Bildfang

C 155

Ton zu leise oder verzerrt

C 14o o,o15 µF Pkt 8 IC 1o1
C 214 o,o47 µF

Kein Ton

C 3o3 + C 212

Negatives Bild

Serviceschalter auf Mitte

Ton brummt, Bild o.k.

Pkt 2.3 und 4 IC 2o1 hat gegen Masse 13 V. Trafo Netzteil Pkt 13 Leiterbahnunterbrechung.

Horizontale Bildlage nicht o.k.

3,3 nF / C 137 IC 1o1 (Pkt 22136/137) gegen 2o nF tauschen

Kein Bild

D 41o + C 33o

Farbe schlecht

T 3o2

Horizontal - Einstellung

C 136

Kein Speicher

IC 6o1 oder Q 605 oder Zehner-Diode 27 V

Keine Fernbedienung

Q 62o

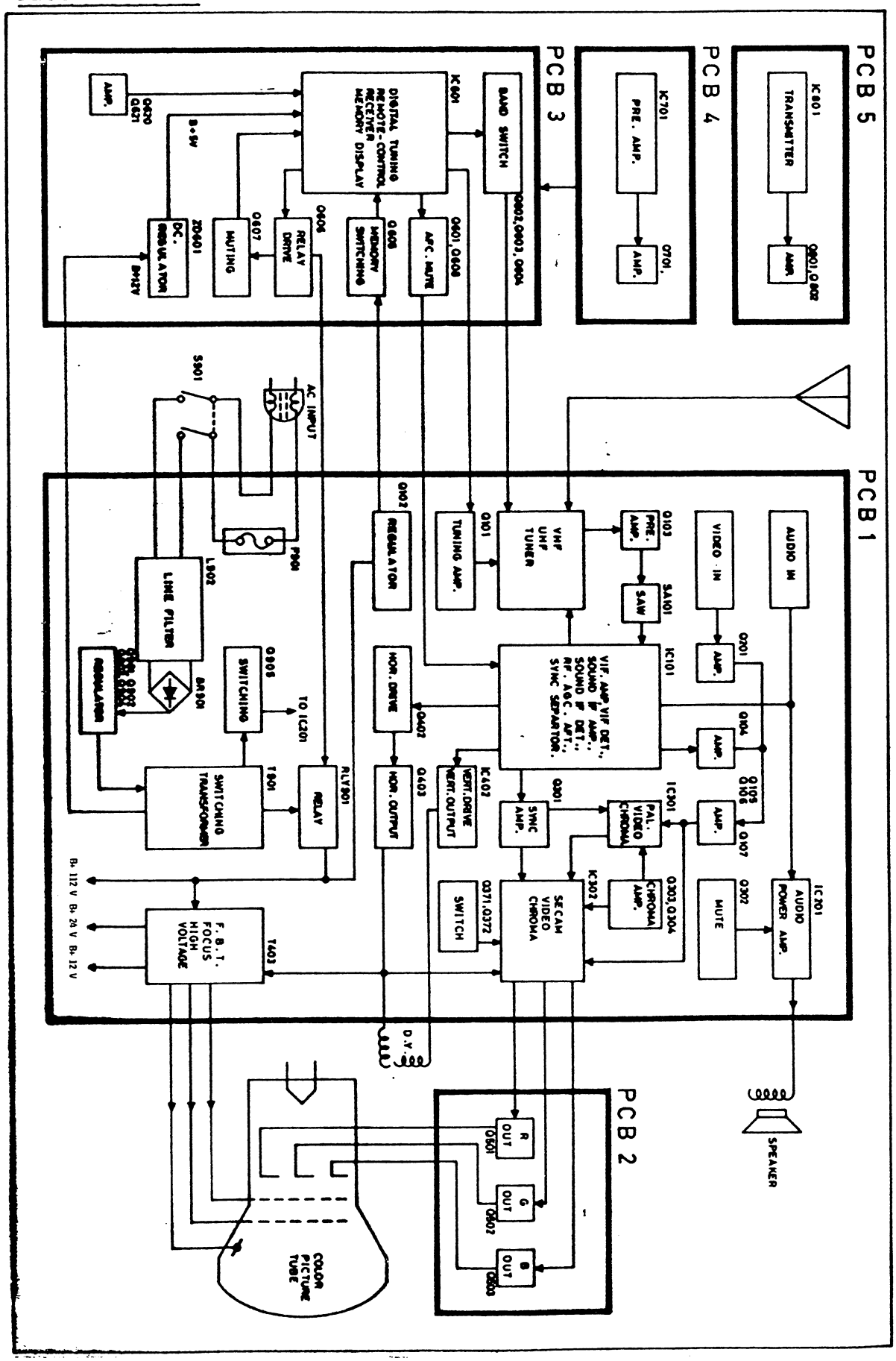
Kundendienstleiter Dieter Radeck

SPECIFICATION

SYSTEM	:	PAL - B/G - SECAM (W.GERMANY)	
CHANNEL COVERAGE- VHF LOW	:	2 - S2	CH
VHF HIGH	:	S3 - S20	CH
UHF	:	21 - 69	CH
FREQUENCY RANGE VHF LOW	:	47 - 118	MHZ
VHF HIGH	:	118 - 300	MHZ
UHF	:	470 - 862	MHZ
SCANNING LINES	:	625	LINES
HORIZONTAL	:	15625	HZ
VERTICAL	:	50	HZ
IF FREQUENCY VIDEO	:	38.9	MHZ
SOUND	:	33.4	MHZ
CHROMA	:	34.47	MHZ
VISION / SOUND SEPARATION	:	5.5	MHZ
SENSITIVITY VHF LOW	:	32	uV
VHF HIGH	:	56	uV
UHF	:	80	uV
OUTPUT POWER MAXIMUM	:	900	mW
10% THD	:	700	mW
CRT	:	20" (50.8cm) DIAGONAL, 29.1mm NECK DIAMETER, 90° DDEFLECTIOI ANGLE.	
SPEAKER	:	3" x 5" 16 OHM	
ANTENNA IMPEDANCE	:	75 OHM	
VIDEO INPUT *	:	1Vp-p (POSITIVE VIDEO) 75 OHM IMPEDANCE	
AUDIO INPUT *	:	0.5V r.m.s. (1 KHZ) 47K OHM IMPEDANCE	
POWER CONSUMPTION	:	85 W	

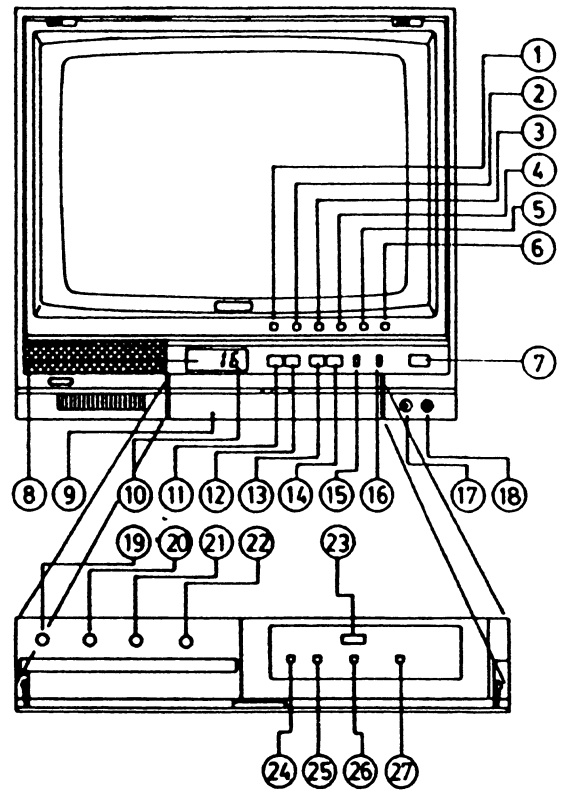
------- REMARK * OPTIONAL -----

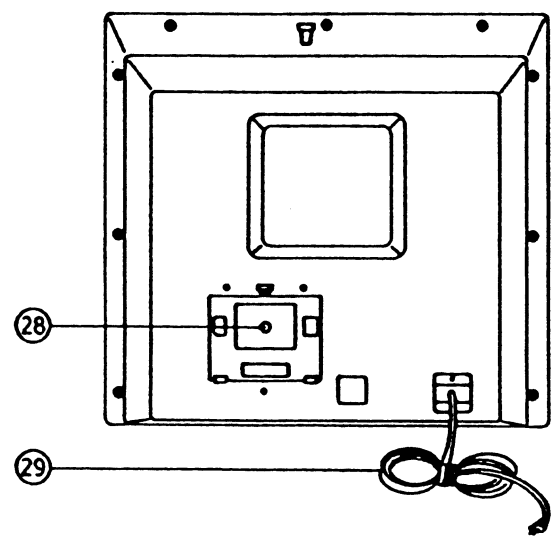
BLOCK DIAGRAM



CONTROL LOCATION

1. LOW VHF BAND INDICATOR
2. HIGH VHF BAND INDICATOR
3. UHF BAND INDICATOR
4. TV INDICATOR
5. VIDEO INDICATOR
6. STAND BY INDICATOR
7. POWER ON / OFF SWITCH
8. REMOTE SENSOR
9. PANEL DOOR
10. DIGITAL CHANNEL INDICATOR
11. CHANNEL DOWN CONTROL
12. CHANNEL UP CONTROL
13. VOLUME DOWN CONTROL
14. VOLUME UP CONTROL
15. TV / VIDEO SELECTOR
16. STAND BY CONTROL
17. VIDEO-IN JACK (OPTIONAL)
18. AUDIO-IN JACK (OPTIONAL)
19. CONTRAST CONTROL
20. BRIGHTNESS CONTROL
21. COLOR CONTROL
22. VERTICAL HOLD CONTROL
23. AFC
24. CHANNEL TUNING (+)
25. CHANNEL TUNING (-)
26. BAND SELECTOR
27. STORAGE BUTTON
28. ANTENNA INPUT SOCKET (75 Ohm)
29. AC POWER CORD

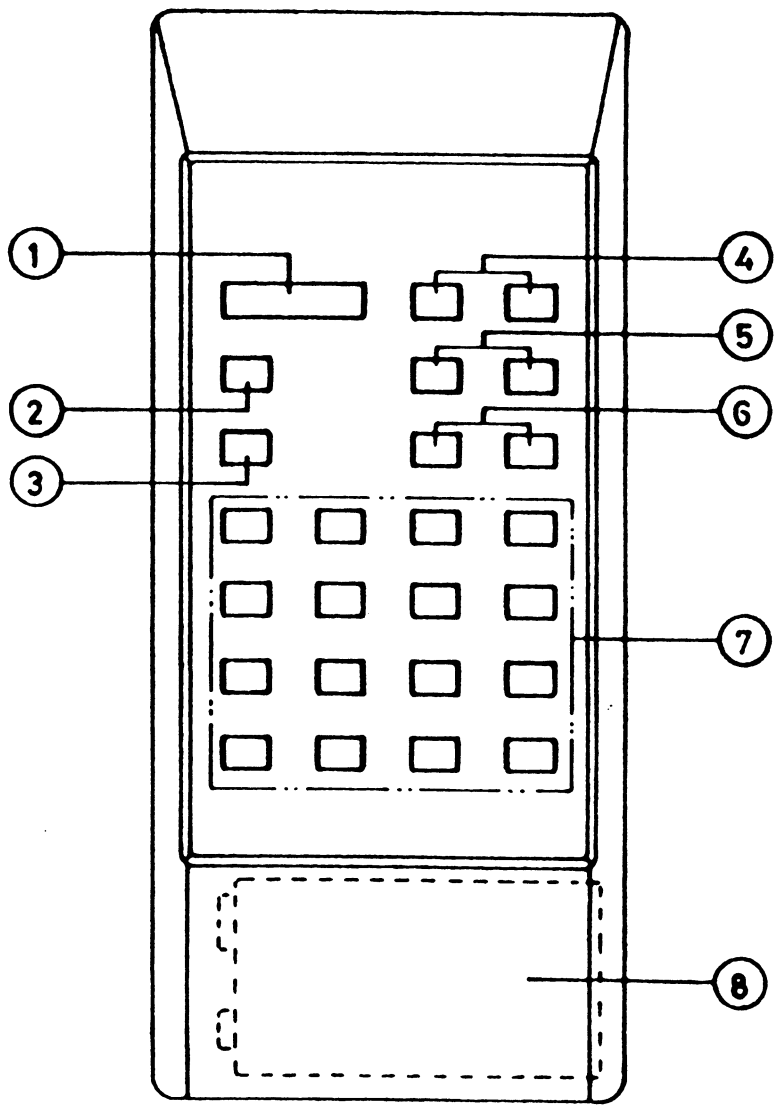




REMOTE HANDSET

CONTROL LOCATION:

1. POWER ON / OFF BUTTON
2. MUTE BUTTON
3. BAND BUTTON
4. VOLUME UP/DOWN BUTTONS
5. CHANNEL UP/DOWN BUTTONS
6. FINE TUNE UP/DOWN BUTTONS
7. CHANNEL SELECTOR BUTTON
8. BATTERY COMPARTMENT LID



ALIGNMENT INSTRUCTION

I. PLEASE READ BEFORE ATTEMPTING SERVICE

1. Do not connect any antenna plug directly to the tuner socket and do not connect any equipments directly to the TV chassis, otherwise it may be burnt out the TV or equipment, except an isolation transformer is used for main power source of the TV sets.
2. Never disconnect any leads while receiver is in operation.
3. Disconnect all power before attempting any repairs.
4. Do not short any portion of the circuits while power is on.
5. For reason of safety, all parts replaced,should be identical, (For Parts and Parts Numbers see PARTS LIST).
6. Before alignment the set must be pre-heated for 30 minutes or more and erase magnetism thoroughly from CRT front chassis frame by erase coil.

II. TEST EQUIPMENT

1. VIF Sweep Generator
2. SIF Sweep Generator
3. Color Bar / Dot / Cross Hatch Generator
4. DC Power Supply (12V)
5. Oscilloscope
6. Vacuum Tube Volt Meter
7. Volt Ohm Meter
8. High Voltage Meter
9. Ampere Meter (0.5 Class, DC 3mA Max.)
10. Demagnetizing Coil
11. Philips Pattern Generator
12. Frequency Counter
13. Continuous Waveform Generator

III. TANK COIL ALIGNMENT

A. PREPARATION STEP (SEE FIG.2)

1. Connect OUTPUT lead of VIF Sweep Generator between tuner test point TP and tuner case.
2. Connect lead of FROM DET between TP 107 and GND.
3. Supply DC 12V to ⊕ lead of D410.
4. Supply RF AGC bias voltage to TP 103. (See Fig.1)

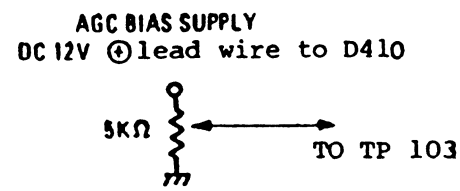


Fig.1

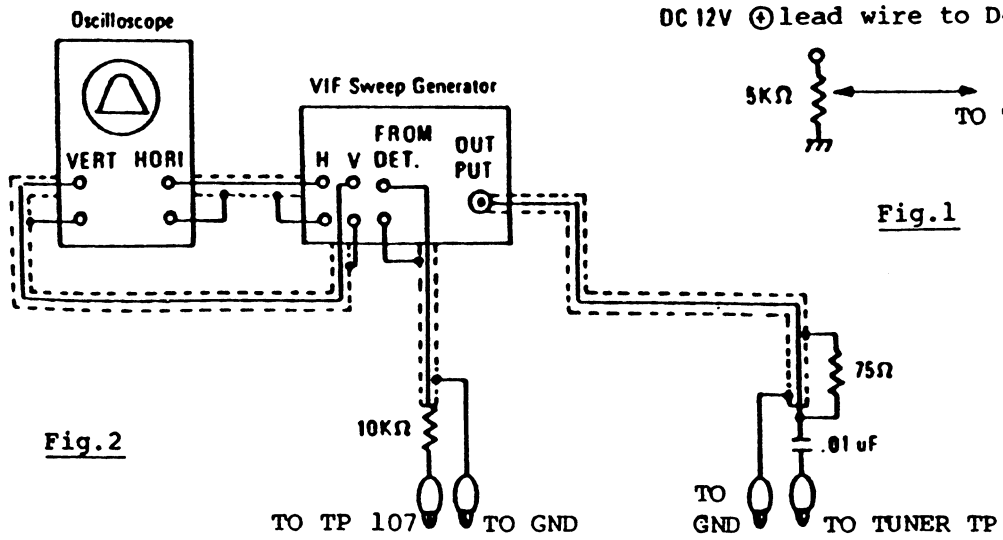


Fig.2

B. ALIGNMENT STEP (SEE FIG.3)

1. Band switch connect to VHF high position.
2. Adjust AGC bias voltage for maximum amplitude of waveform.
3. Adjust the level of Sweep Generator to achieve 1Vp-p output.
4. Adjust T103 to obtain maximum amplitude of response cause at PC (38.9 MHz) as in Fig.3.

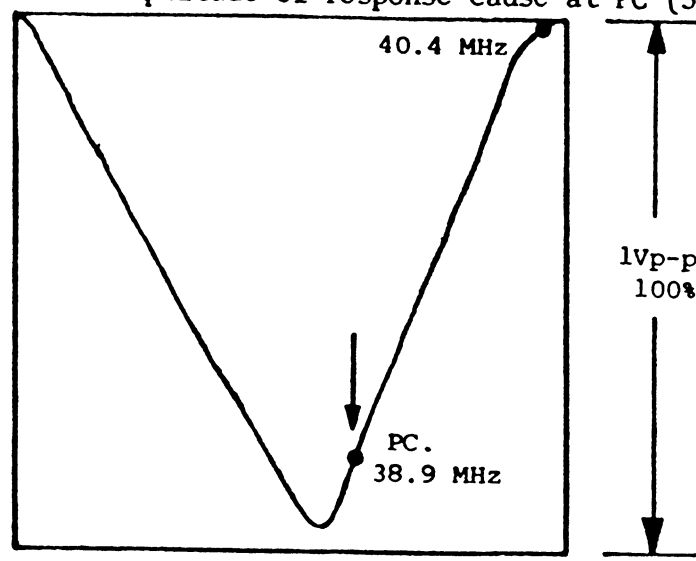


Fig.3

IV. VIF ALIGNMENT

A. PREPARATION STEP (SEE FIG.2)

1. Connect output lead of VIF Sweep Generator between tuner test point TP and tuner case.
2. Connect resistor (100 Ohm) between TP 104 and TP 105.
3. Connect lead of FROM DET between TP 107 and GND.
4. Supply DC 12V to ⊕ lead of D410.
5. Supply RF AGC bias voltage to TP 103. (See Fig.1)

B. ALIGNMENT STEP

1. Adjust AGC bias voltage for maximum amplitude of waveform.
2. Adjust the level of Sweep Generator to achieve 1Vp-p output.
3. Increase the output level of Sweep Generator in 20 dB.
4. Adjust AGC bias voltage to achieve 1Vp-p output (on Oscilloscope).
5. Adjust tuner converter coil to obtain the waveform as in Fig.4.
6. Increase the output level of Sweep Generator in 10 dB adjust L101 to obtain the waveform as in Fig.5.

Fig.4

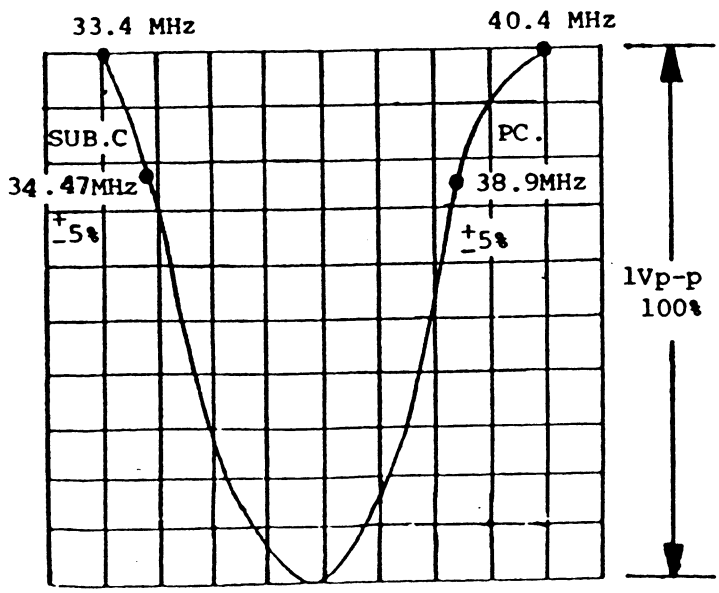
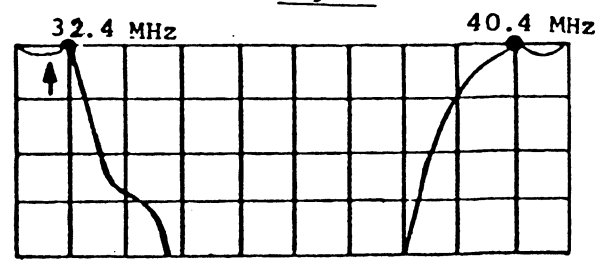


Fig.5



V. AFC ALIGNMENT

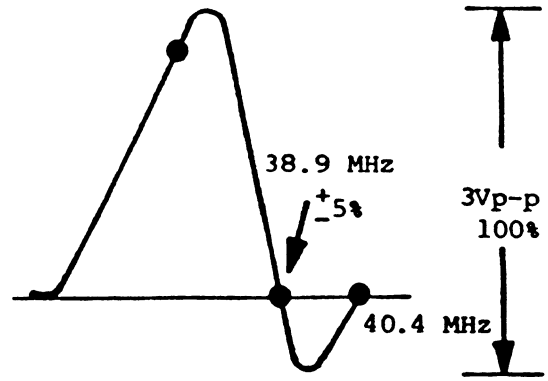
A. PREPARATION STEP

1. Connect RF AGC bias voltage at TP 103.
2. Remove the damping resistor (100 Ohm) at TP 104, TP 105.
3. Connect output lead of Sweep Generator to tuner test point TP and tuner case.
4. Increase the output level of Sweep Generator in 10 dB.
5. Connect lead of FROM DET between TP 101 and GND.
6. Supply DC +12V to ⊕ lead of D410.

B. ALIGNMENT STEP

1. Adjust the AGC bias to achieve 3Vp-p output.
2. Adjust T101 so that picture carrier 38.9 MHz is centered as in Fig.6.

Fig.6



VI. SIF ALIGNMENT

A. PREPARATION STEP (SEE FIG.7)

1. Connect output lead of SIF Sweep Generator between TP 107 and GND.
2. Connect lead of FROM DET between TP 201 and TP 202.
3. Supply DC 12V to ⊕ lead of D410.

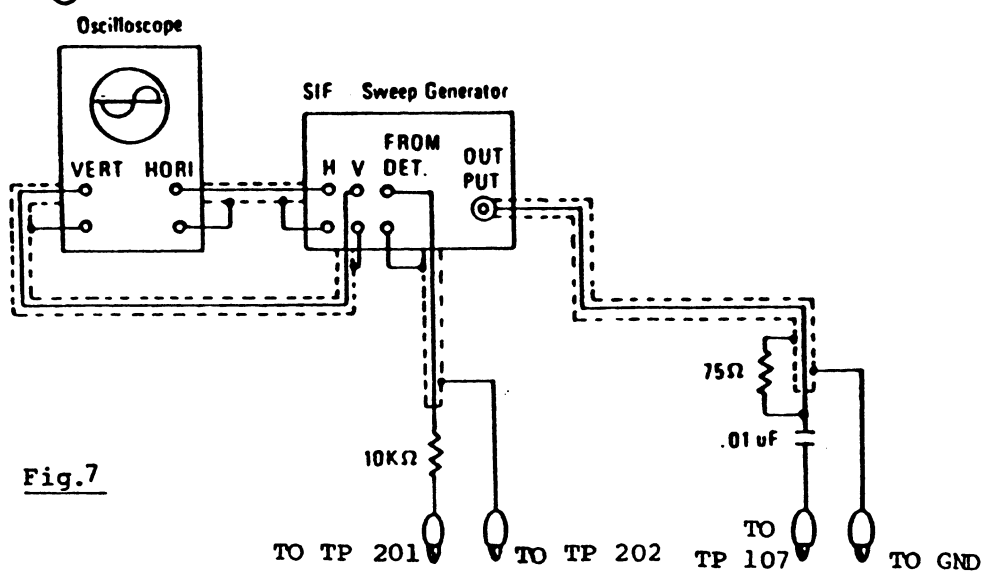


Fig.7

B. ALIGNMENT STEP

1. Adjust output of Sweep Generator to achieve 4Vp-p between markers of 100 KHz.
2. Adjust T104 so that sound carrier is centered as in Fig.8.
3. Confirm the waveform as in Fig.8.

NOTE : Input level : -30 to 0 dB.

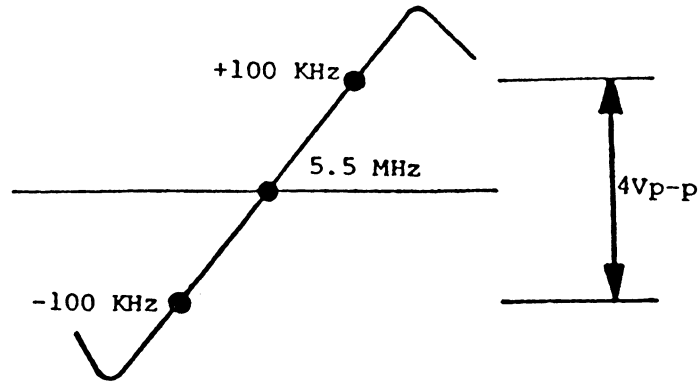


Fig.8

VII. B+ ADJUSTMENT

1. Receive Monoscope Pattern.
2. Connect volt meter between TP 901 and GND B+ Adjust VR901 to reading of DC 112.25 ± 0.25V.

VIII. HORIZONTAL CIRCUIT ADJUSTMENT

1. Receive Monoscope Pattern. Input signal 80 dBuV.
2. Connect ⊕ lead of 100 uF capacitor to IC101 PIN (6) and GND.
3. Adjust VR101 to obtain the picture running at center.
4. Remove the 100 uF capacitor.
5. VR 1o6 Horzizontale Bildlage

IX. VERTICAL CIRCUIT ADJUSTMENT

1. Receive the Monoscope Pattern.
2. Set V-HOLD (VR104) control to middle position.
3. Set the CHANNEL SELECTOR to no signal channel.
4. Connect the Frequency Counter between V-DEFLECTION YORK and GROUND.
5. Adjust SUB-V-HOLD (VR103) to the reading 50 Hz.
6. Receive Monoscope Pattern.
7. Adjust V-HEIGHT (VR105) control to obtain a normal picture.

X. WHITE BALANCE ADJUSTMENT

1. Set the SCREEN control on the FBT to middle position.
2. Turn the LOW-LIGHT (VR501,VR505,VR502) controls to middle position, and turn the DRIVE (VR503,VR506) controls to middle position.
3. Receive a black and white picture signal and set the AFC switch to 'ON' position.
4. Turn the SCREEN control to minimum position.
5. Set the SUB-BRIGHTNESS (VR401) control to middle position, then turn the CONTRAST control (VR304) and COLOR control (VR306) fully counter-clockwise.
6. Set the SERVICE switch (S301) to 'SERVICE' position.
7. Connect volt meter between Q502 PIN (C) and GND, and adjust BRIGHTNESS (VR307) control to the reading of DC 140V. If DC 140V can not be obtain, adjust the SUB-BRIGHTNESS control (VR401).
8. Slowly turn the SCREEN control clockwise to the point where the green color just illuminates.
9. The LOW-LIGHT control volume corresponded to the color appeared on the CRT, leaves as it is, and need no further adjustment for this control volume. Turn the rest of LOW-LIGHT control volumes toward clockwise to get white horizontal line on CRT.
10. Reset the SERVICE switch (S301) to 'NORMAL' position and turn BRIGHTNESS (VR307) control to middle position.
11. Adjust red and blue DRIVE (VR503, VR506) controls to obtain a uniform white raster.

12. Check the black and white picture detail for proper black and white rendition (no coloration) from low-lights to high-lights and all brightness levels for proper tracking.
Proper tracking at all brightness levels can be obtain when the SCREEN control, LOW-LIGHT controls and DRIVE controls are properly adjusted.
If the results are unsatisfactory, repeat from the beginning.

XI. FOCUS ADJUSTMENT

1. Set CONTRAST control to maximum position and BRIGHTNESS control to middle position.
2. Adjust FOCUS control (on the FBT) to obtain a sharpest and clearest picture on the CRT.

XII. RF AGC ALIGNMENT

1. Receive the signal of BAND-III (VHF HIGH) channel, and set the AFC switch to 'ON' position.
2. Set the input field strength in 62 ± 3 dB.
3. Adjust RF AGC (VR102) control to the point where noise is disappeared.

XIII. COLOR DEMODULATOR ALIGNMENT, DELAY LINE ALIGNMENT

1. Receive Philips Pattern and set the AFC switch to 'ON' position.
2. Set the 'SERVICE' switch (S301) to 'SERVICE' position.
3. Set COLOR (VR306) control to maximum position.
4. Connect Oscilloscope to TP 309 (B-out).
5. Adjust VR302 to obtain the waveform as in Fig.9.
6. Adjust T302 and VR301 to obtain the waveform as in Fig.9.

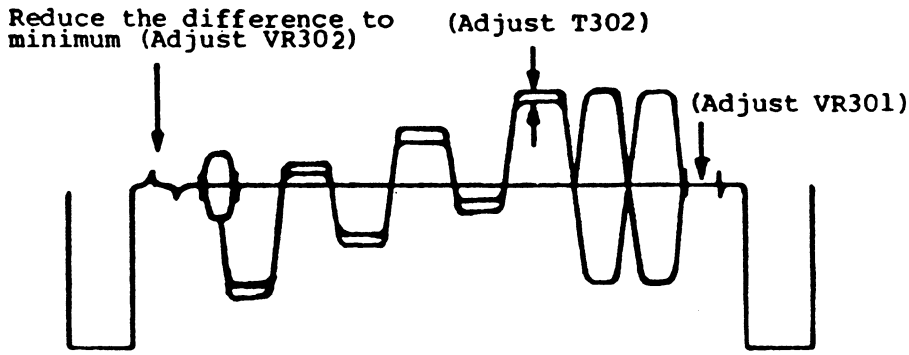


Fig.9

XIV. PAL SUB-COLOR ADJUST

1. Receive PHILIPS Pattern.
2. Set the 'SERVICE' switch (S301) to 'SERVICE' position.
3. Connect Oscilloscope to TP 310.
4. Adjust VR305 (PAL SUB-COLOR) to obtain as same as the Fig.10.

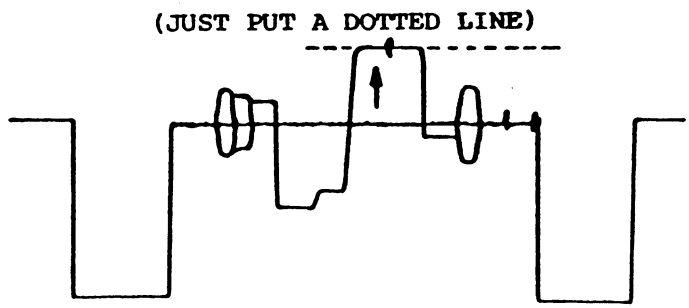


Fig.10

XV. SUB-BRIGHTNESS ALIGNMENT

1. Connect the negative side of DC ampere meter (3mA full scale range) to TP 402 and TP 401 to ground.
2. Receive PHILIPS Pattern and set AFC switch set 'ON' position.
3. Set controls as follow :
   BRIGHTNESS control ..... Max. Position
   CONTRAST control ..... Max. Position
   COLOR control ..... Min. Position
4. Adjust SUB-BRIGHTNESS (VR401) control to the reading of 450 uA.

XVI. COLOR PURITY ADJUSTMENT (SEE FIG.11)

1. BEFORE ALL ADJUSTMENT DESCRIBED BELOW ARE ATTEMPTED, V-HOLD, H-HOLD, V-HIGH, B-HIGH, B+ VOLTAGE AND FOCUSING ADJUSTMENT MUST BE COMPLETED.

1. Place the TV receiver facing NORTH or SOUTH.
2. Plug in TV receiver and turn it on.
3. Operate the TV receiver over 30 minutes.
4. Fully degauss the TV receiver by using an external degaussing coil.
5. Receive a crosshatch pattern and adjust the static convergence control roughly.
6. Loosen the clamp screw of the deflection yoke and pull the deflection yoke towards you.
7. Fully turn the red and blue low light (VR503, VR506) counter-clockwise.
8. Adjust the purity magnets so that green field is obtained at the center of the screen.
9. Slowly push the deflection yoke towards bell of CRT and set it where a uniform green field is obtained.
10. Tighteen the clamp screw of the deflection yoke.

XVII. CONVERGENCE ADJUSTMENT (SEE FIG.11)

1. Receive a dotted pattern.
2. Unfix the convergence magnet clamper and align red with blue dots at the center of the screen by rotating (R,B) static convergence magnets.
3. Align Red / Blue with green dots at the center of the screen by rotating (RB-G) static convergence magnet.
4. Fix the convergence magnets by turning the clamper.
5. Remove the DY wedges and slightly tilt the deflection yoke horizontally and vertically to obtain the good overall convergence.
6. Fix the deflection yoke by wedges.
7. If purity error is found, follow 'PURITY ADJUSTMENT' instructions.

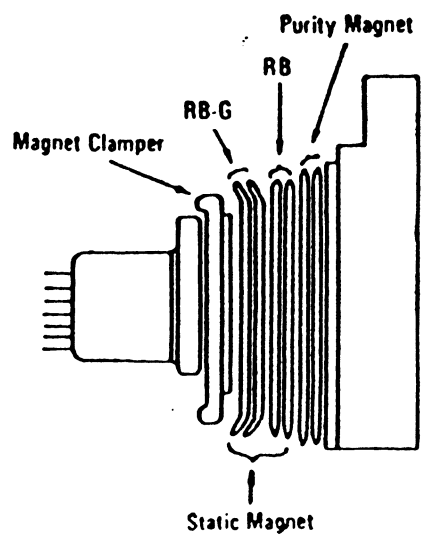
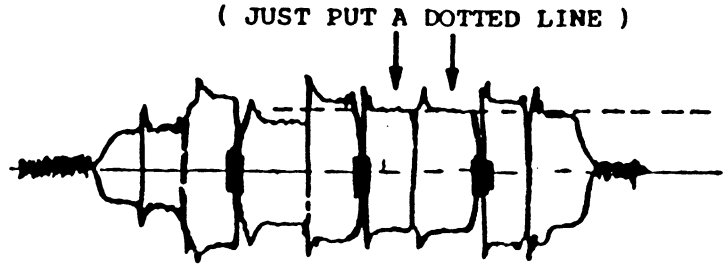


Fig.11

XVIII. CHOCK FILTER ALIGNMENT (SEE FIG.12)

1. Connect Oscilloscope between 10K Ohm to TP 307.
2. Receive SECAM color bar signal.
3. Adjust T301 to obtain the waveform as same as Fig.12.

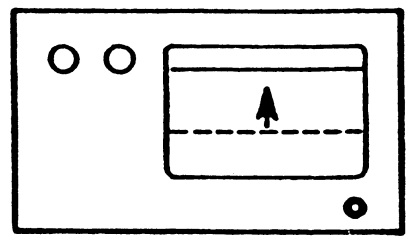
Fig.12



XIX. SECAM KILLER ADJUST (SEE FIG.13)

1. Receive SECAM color bar signal.
2. Connect Oscilloscope to TP 301.
3. Slowly adjust T305 to make the output DC 200 mV voltage to maximum.

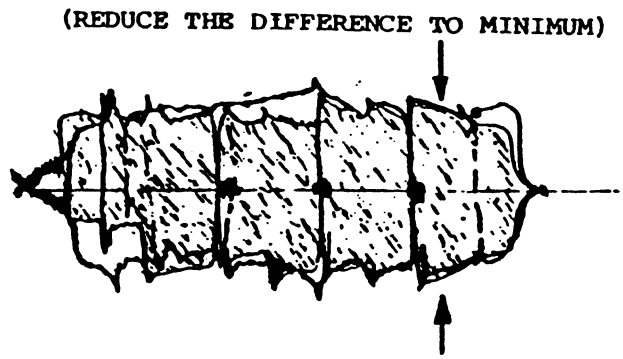
Fig.13



XX. SECAM 1H BALANCE ADJUST (SEE FIG.14)

1. Connect Oscilloscope to TP 305, another one to TP 308.
2. Receive SECAM color bar signal.
3. Adjust VR303 to make the level of TP 305, as same as level of TP 308.

Fig.14



XXI. SECAM PHASE ADJUST

1. Receive SECAM color bar signal.
2. Connect Syncroscope at TP 303 (BLUE) and adjust T304 to obtain the waveform as same as Fig.15.
3. Connect Syncroscope at TP 302 (RED) and adjust T303 to obtain the waveform as same as Fig.16.

Fig.15

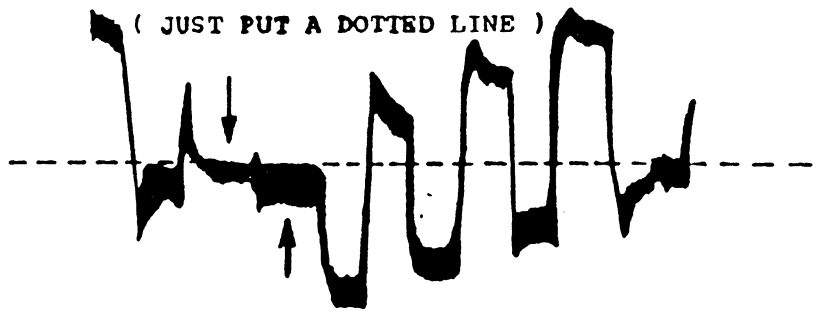
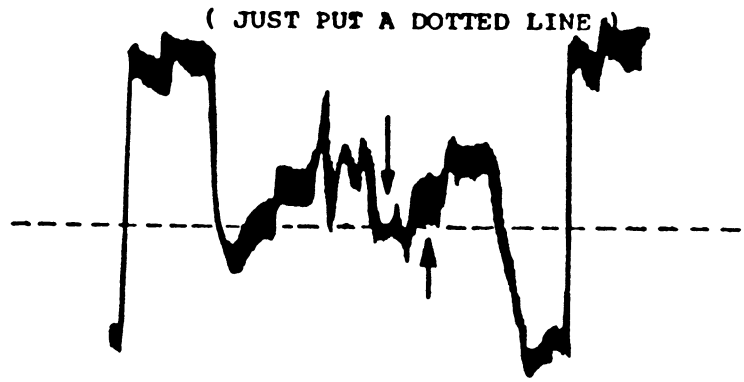


Fig.16



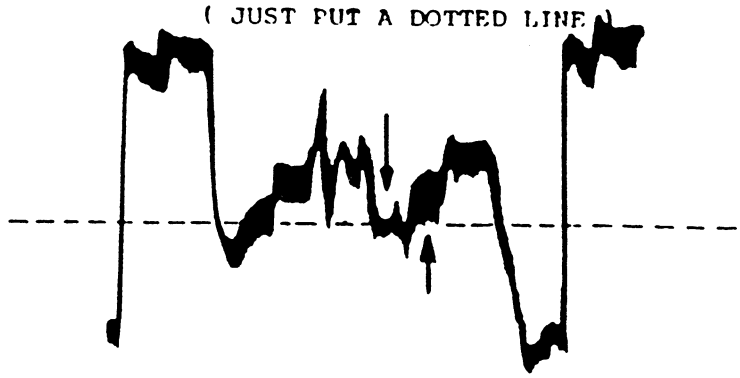
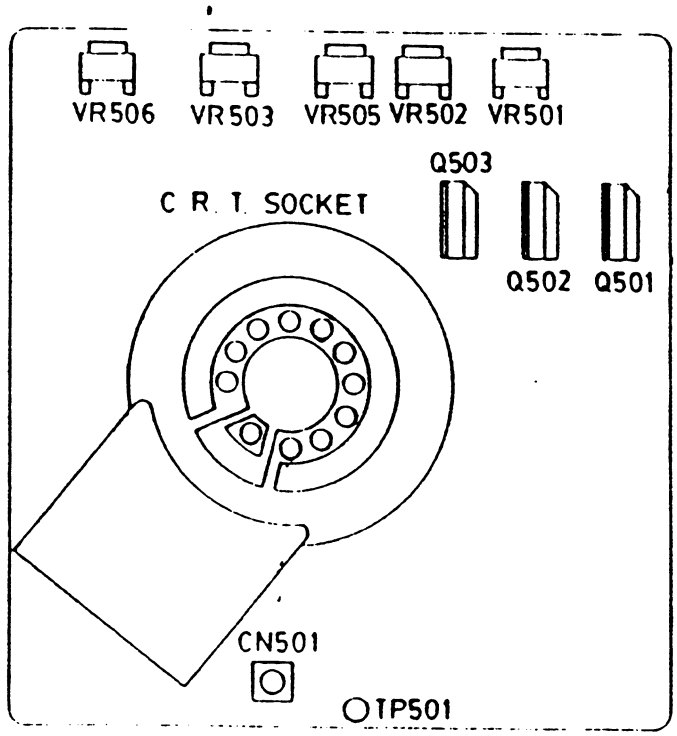


FIG. 15

ALIGNMENT POINT OF CRT. BOARD



VOLTAGE TABLE FOR TRANSISTOR							
SYMBOL	B (V)	C (V)	E (V)	SYMBOL	B (V)	C (V)	E (V)
Q 103	1.17	8.92	0.41	Q 403	-0.52	112.6	GND
Q 104	2.83	12.1	2.20	Q 501	2.60	138.5	2.30
Q 105	4.79	8.07	4.15	Q 502	2.60	138.5	2.20
Q 106	8.07	12.1	7.4	Q 503	2.60	136.9	2.10
Q 107	4.15	12.1	3.51	Q 901	9.17	12.6	1.64
Q 201	0.91	2.67	0.23	Q 902	5.33	0.03	1.64
Q 301	0.51	11.5	0.37	Q 903	0.03	1.00	GND
Q 302	0.63	0.04	GND	Q 904	-0.27	326.00	0.05
Q 303	10.20	0.00	10.90	Q 905	13.30	13.20	12.50
Q 304	8.62	0.00	9.31	Q 371	0.50	0.00	GND
Q 402	0.60	62.50	GND	Q 372	0.00	7.80	GND

VOLTAGE TABLE FOR REMOTE TRANSISTOR ONLY							
Q 101	0.70	22.0	GND	Q 606	0.73	0.00	GND
Q 102	26.0	110	25.5	Q 607	0.15	2.66	GND
Q 601	0.69	0.02	GND	Q 608	0.1	2.45	GND
Q 602	10.9	11.5	11.6	Q 620	4.5	0.20	5.00
Q 603	11.3	12.4	0.00	Q 621	0.25	5.00	0.30
Q 604	11.3	12.4	0.00	Q 701	4.38	5.03	4.23
Q 605	25.3	0.00	25.3	Q 801	0.00	7.60	0.00
Q 401	0,06	0,17	- 0,38	Q 802	0.00	7.57	GND

NOTE : VOLTAGE ARE TAKEN UNDER TUNED CONDITION WITH

CONTRAST : MAXIMUM POSITION
BRIGHTNESS : CENTER POSITION
COLOR : CENTER POSITION
SIGNAL INPUT : 80 dBuV
CHANNEL SETTING : THE LAST CHANNEL OF VHF HIGH

VOLTAGE TABLE FOR IC						
SYMBOL / PIN NO	IC 101 (V)	IC 201 (V)	IC 301 (V)	IC 302 (V)	IC 401 (V)	IC 402 (V)
1	4.76	11.2	10.9	10.9	87.4	GND
2	5.25	5.03	10.9	9.34	0.17	12.1
3	7.69	0.01	8.35	2.75	264	24.8
4	4.62	4.35	8.32	2.76	0.06	0.75
5	2.88	10.9	2.23	2.86	NC	-0.28
6	6.37	11.3	1.67	1.46		1.32
7	3.04	GND	6.55	1.12		24.1
8	3.02	9.00	5.04	1.52		
9	4.68	18.0	8.62	8.96		
10	4.68		1.92	2.29		
11	2.2		1.20	2.29		
12	5.75		9.25	2.28		
13	3.62		5.54	2.28		
14	6.46		GND	GND		
15	6.47		7.34	2.28		
16	9.37		4.19	2.29		
17	1.98		7.97	10.2		
18	5.30		7.90	0.00		
19	5.27		0.01	6.55		
20	9.57		8.91	2.28		
21	GND		3.03	8.88		
22	3.16		3.02	6.51		
23	0.91		0.00	2.28		
24	4.63		2.66	2.28		
25	0.45		2.66	5.78		
26	3.72		3.57	0.00		
27	0.32		3.55	11.0		
28	4.76		9.34	0.49		

NOTE : VOLTAGE ARE TAKEN UNDER TUNED CONDITION WITH

CONTRAST : MAXIMUM POSITION
BRIGHTNESS : CENTER POSITION
COLOR : CENTER POSITION
SIGNAL INPUT : 80 dBuV
CHANNEL SETTING : THE LAST CHANNEL OF VHF HIGH

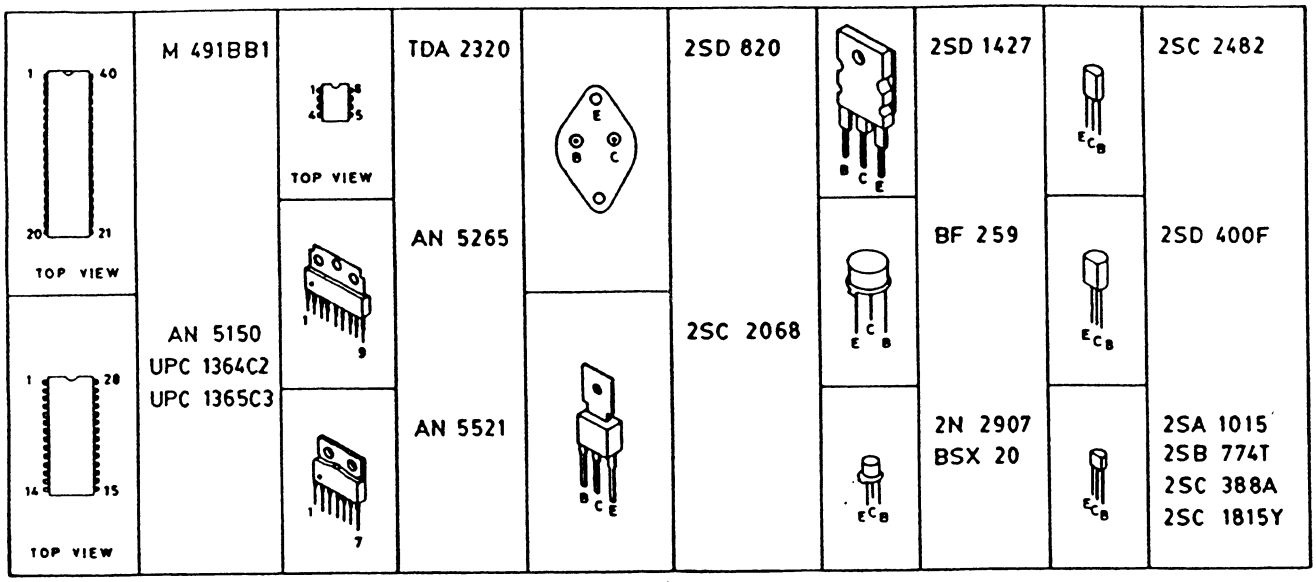
VOLTAGE TABLE FOR REMOTE IC ONLY

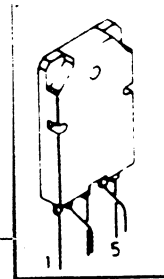
SYMBOL / PIN NO.	IC 601 (V)	IC 701 (V)	IC 801 (V)
1	GND	4.22	9.00
2	0.00	4.23	8.14
3	26.0	4.23	9.00
4	5.70	GND	8.99
5	2.59	0.91	8.99
6	NC	0.91	8.99
7	1.90	0.91	8.99
8	1.87	5.00	8.99
9	5.00		0.00
10	GND		0.00
11	2.00		0.00
12	0.10		0.00
13	0.11		0.00
14	0.24		0.00
15	2.50		GND
16	NC		9.00
17	5.00		0.00
18	4.93		GND
19	4.93		0.00
20	4.92		9.00
21	0.18		
22	0.20		
23	0.20		
24	0.23		
25	5.00		
26	0.73		
27	4.69		
28	0.07		
29	0.07		
30	4.92		
31	5.00		
32	GND		
33	4.91		
34	4.91		
35	4.91		
36	4.90		
37	0.50		
38	GND		
39	11.6		
40	11.6		

NOTE : VOLTAGE ARE TAKEN UNDER TUNED CONDITION WITH

CONTRAST : MAXIMUM POSITION
BRIGHTNESS : CENTER POSITION
COLOR : CENTER POSITION
SIGNAL INPUT : 80 dBuV
CHANNEL SETTING : THE LAST CHANNEL OF UHF HIGH

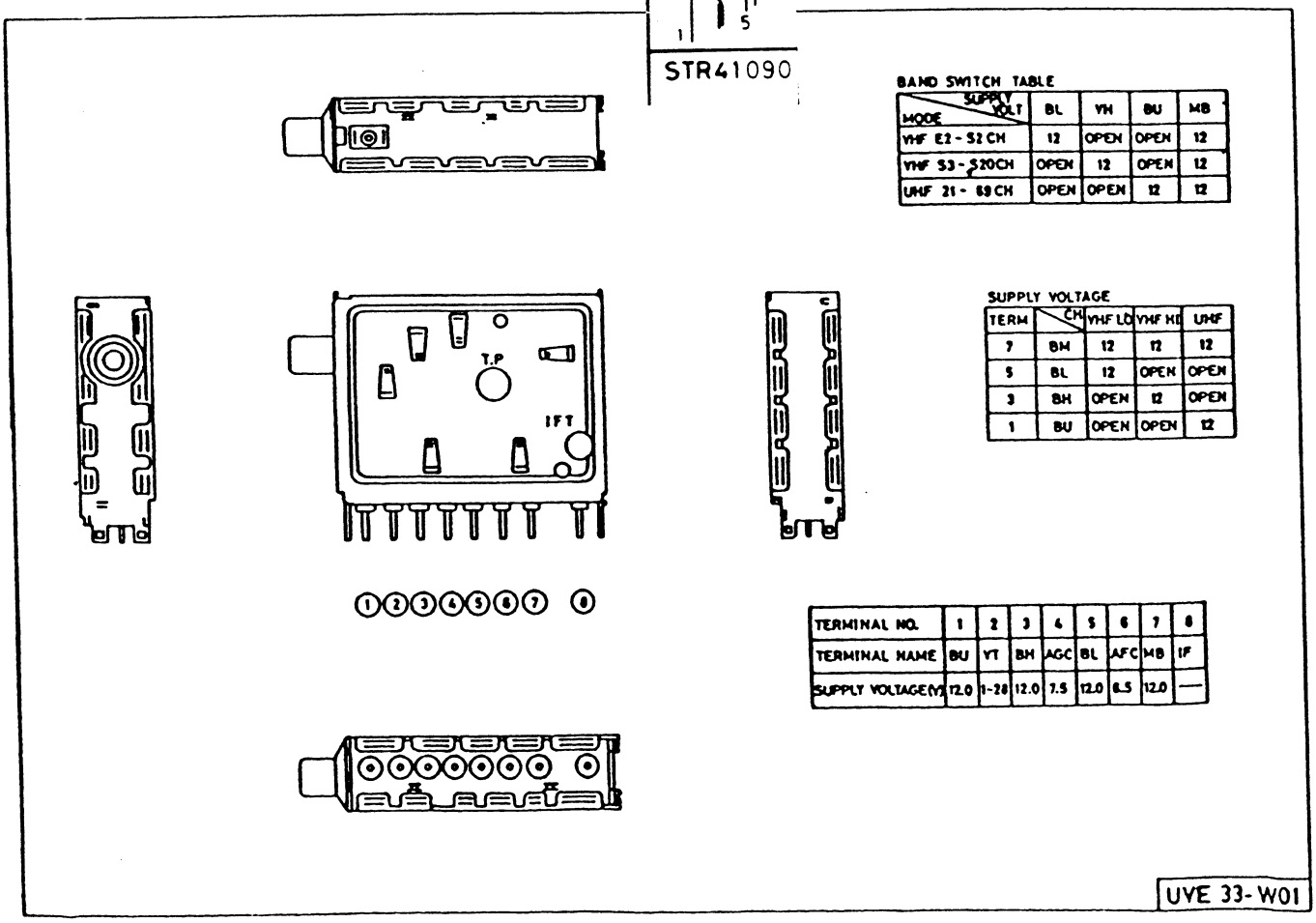
TRANSISTOR AND IC IDENTIFY





STR41090

PICTORIAL VIEW OF TUNER



BAND SWITCH TABLE

MODE \ SUPPLY VOLT	BL	VH	BU	MB
VHF E2 - S2 CH	12	OPEN	OPEN	12
VHF S3 - S20CH	OPEN	12	OPEN	12
UHF 21 - 69 CH	OPEN	OPEN	12	12

SUPPLY VOLTAGE

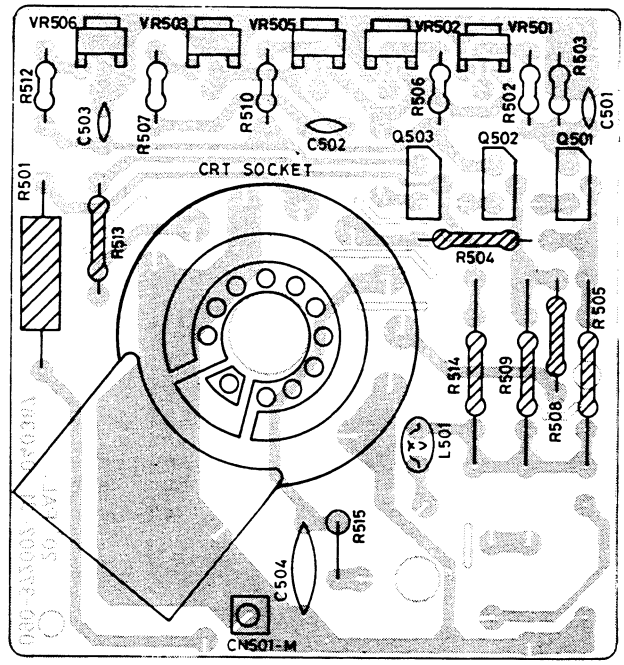
TERM \ CH	VHF LO	VHF HI	UHF
7	BM	12	12	12
5	BL	12	OPEN	OPEN
3	BH	OPEN	12	OPEN
1	BU	OPEN	OPEN	12

TERMINAL NO.	1	2	3	4	5	6	7	8
TERMINAL NAME	BU	VT	BH	AGC	BL	AFC	MB	IF
SUPPLY VOLTAGE(V)	12.0	1-28	12.0	7.5	12.0	6.5	12.0	—

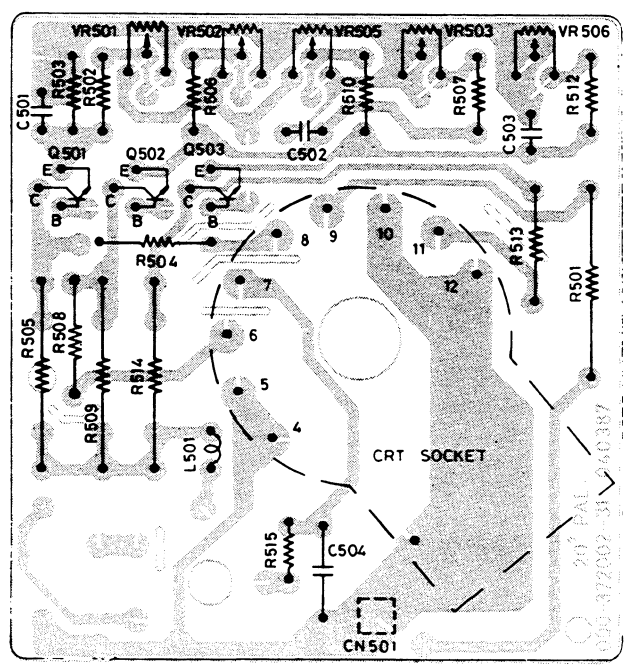
UVE 33-W01

COMPONENT DIAGRAM OF CRT BOARD

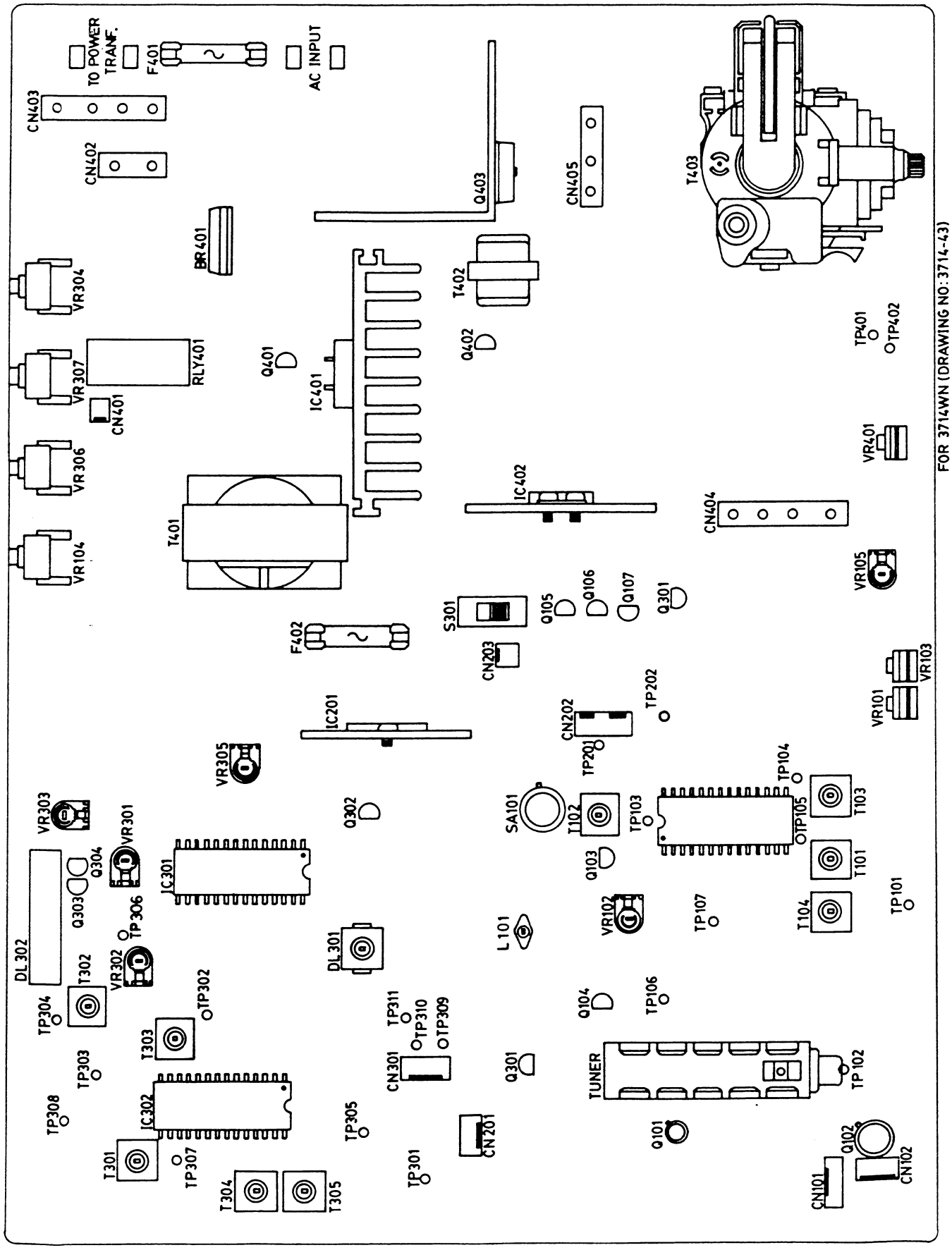
(TOP VIEW)



(BOTTOM VIEW)



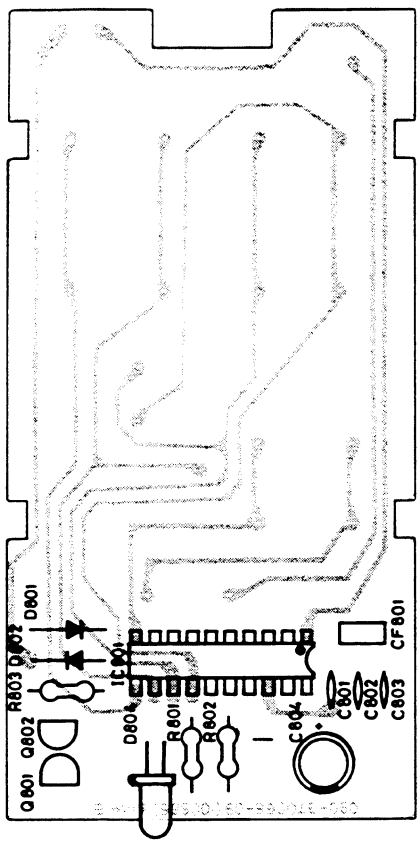
ALIGNMENT POINT OF MAIN BOARD :

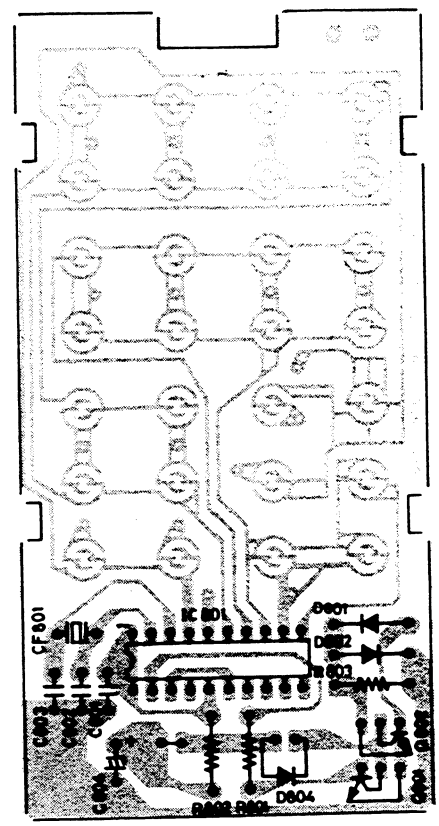


FOR 3714WN (DRAWING NO: 3714-43)

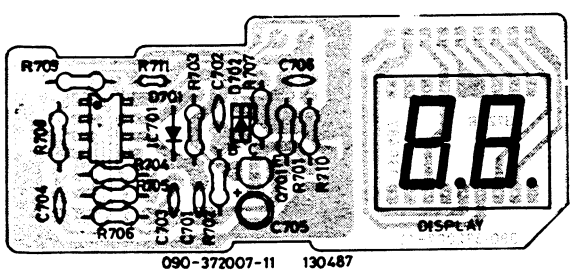
COMPONENT DIAGRAM

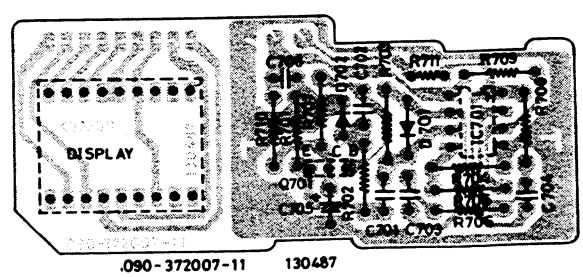
(TOP VIEW) REMOTE HANDSET BOARD (BOTTOM VIEW)





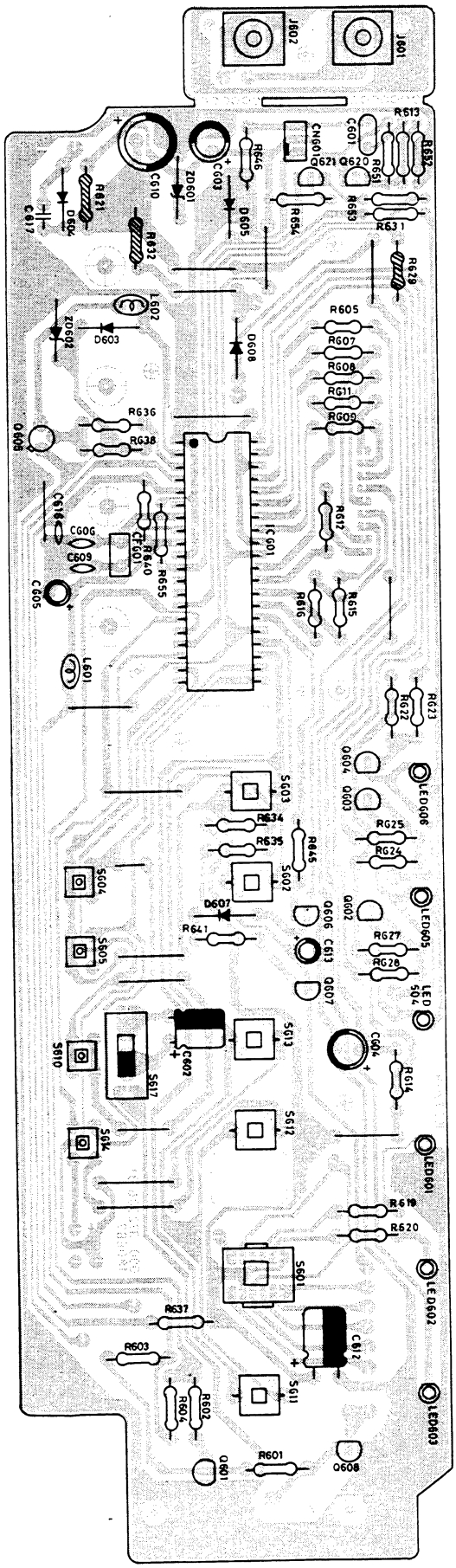
(TOP VIEW) SENSOR BOARD (BOTTOM VIEW)



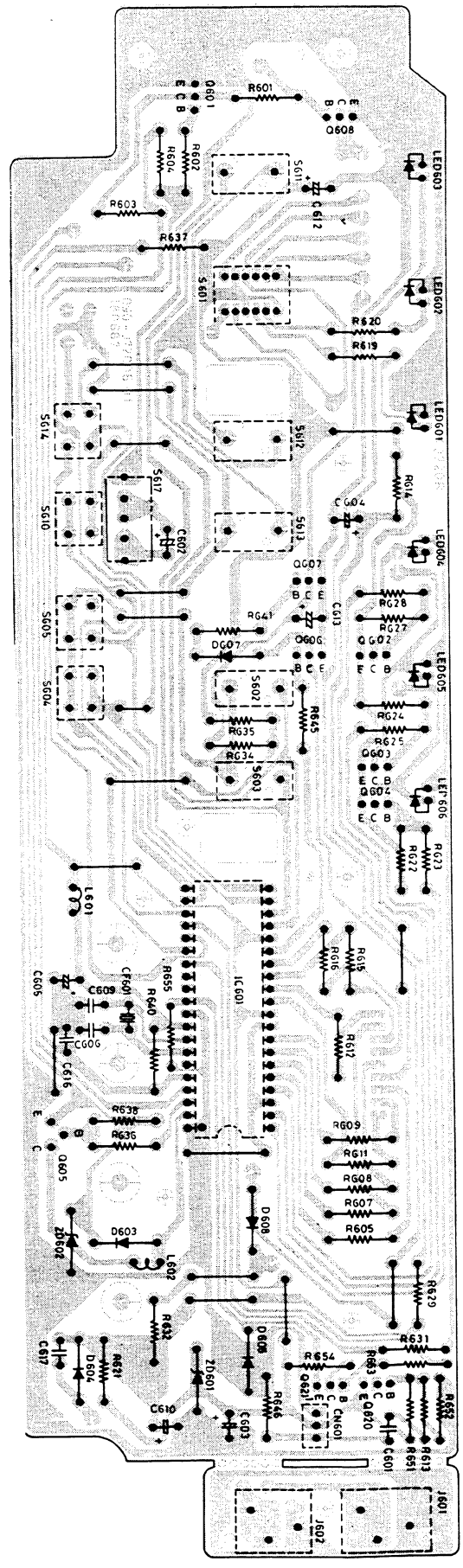


COMPONENT DIAGRAM OF PANEL BOARD

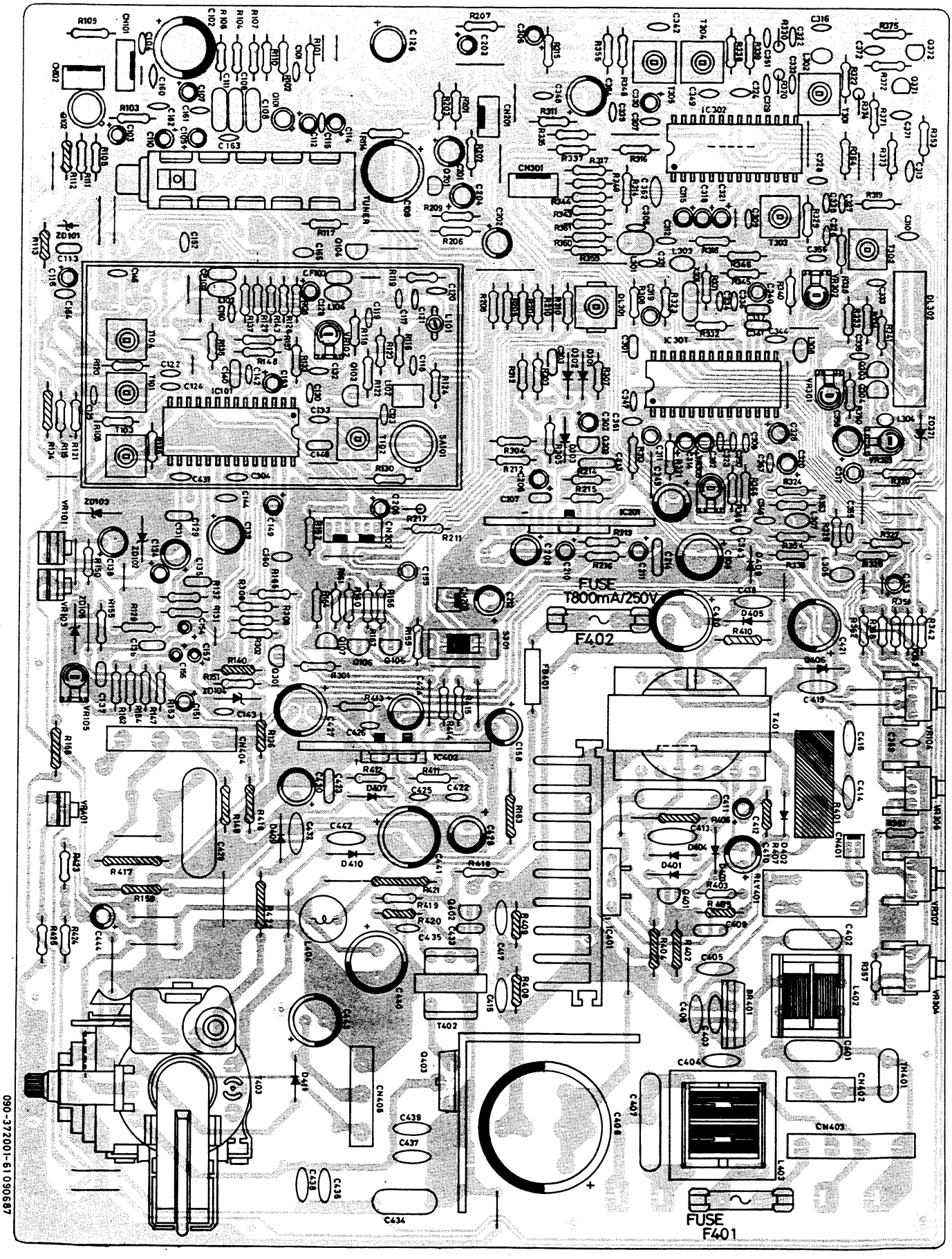
(TOP VIEW)



(BOTTOM VIEW)



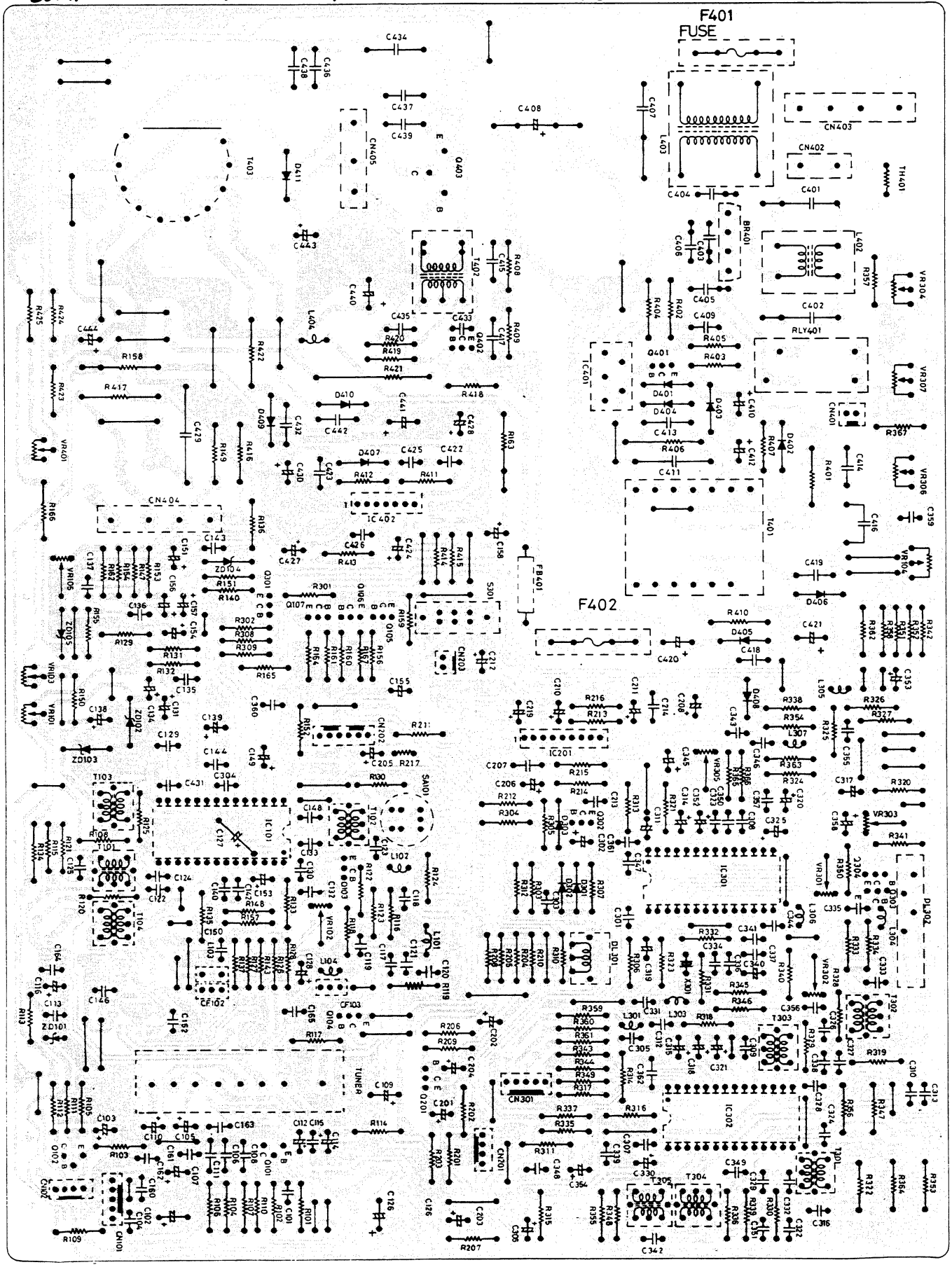
090-372006-31 20" PAL
180687
SCALE: 2:1



090-37200I-6109087

COMPONENT DIAGRAM OF MAIN BOARD : (BOTTOM VIEW)

090-372001-61 0906B7 COMPONENT LAYOUT - BOTTOM VIEW



SCHEMATIC DIAGRAM FOR SECAM - B/G SYSTEM

A

← 22

23

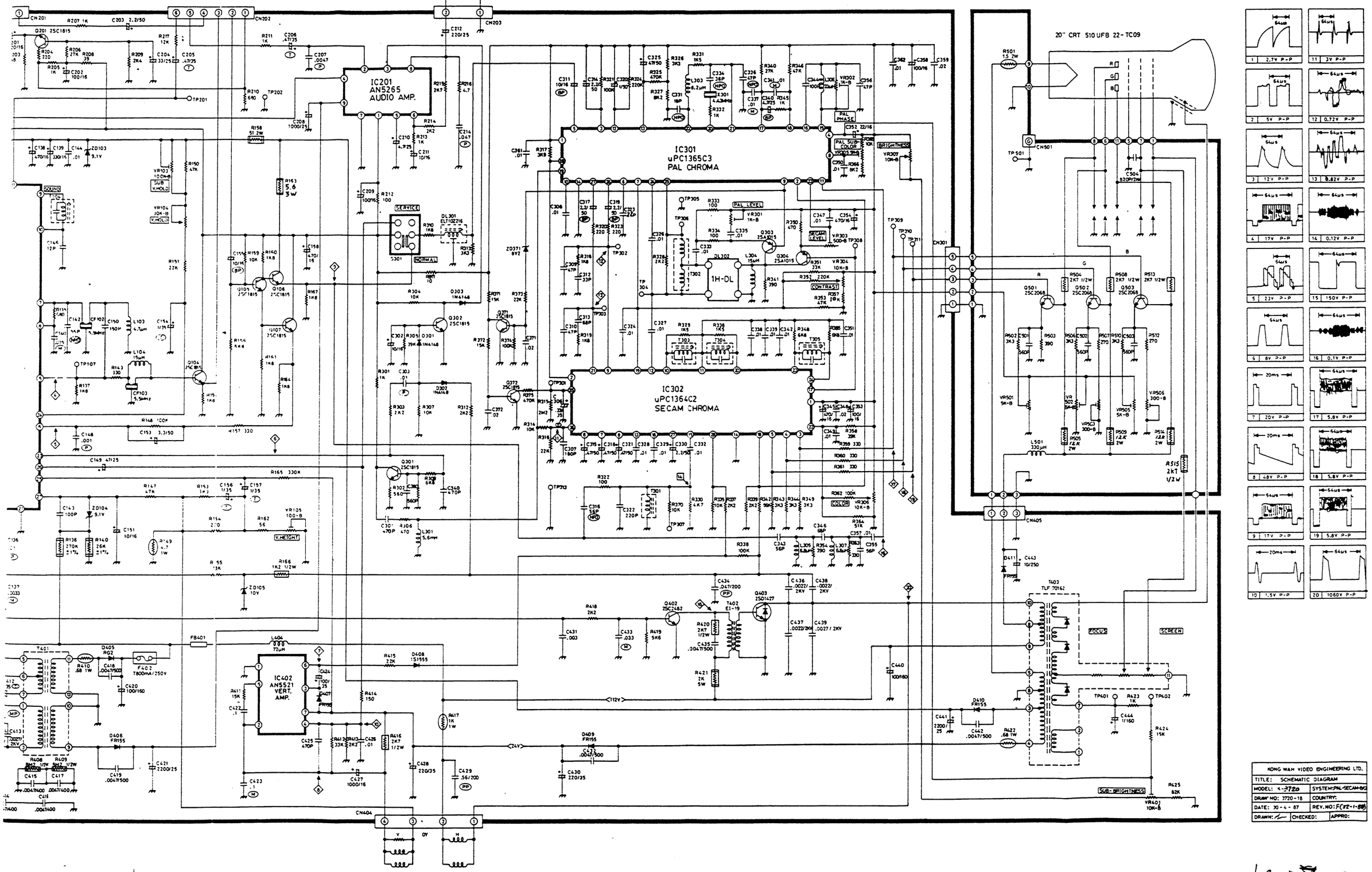
Drawing No: 3720-18

NOTE

(1) ALL CAPACITORS ARE IN µF UNLESS OTHERWISE NOTED
ALL CAPACITORS ARE 50 WV UNLESS OTHERWISE NOTED
(2) CAPACITOR NOT SPECIFICALLY DESIGNATED ARE CERAMIC CAPACITORS
a) ELECTROLYTIC CAPACITOR
b) BI-POLAR ELECTROLYTIC CAPACITOR
c) TANTALUM CAPACITOR
d) METALLIZED POLYESTER
e) POLYESTOR FILM CAPACITOR
f) POLYPROPYLENE CAPACITOR
g) MYLAR CAPACITOR
(3) ALL RESISTORS ARE IN OHM 1/4 WATT UNLESS OTHERWISE NOTED
(4) RESISTOR NOT SPECIFICALLY DESIGNATED ARE CARBON FILM RESISTORS
a) NONFLAMMBLE RESISTOR
b) FUSEBLE RESISTOR
c) CEMENT RESISTOR
d) METAL OXIDE RESISTOR
e) THERMISTOR
(5) DC VOLTAGE AGE MEASURED FROM POINTS INDICATED TO THE CIRCUIT GROUND WITH A DIGITAL MULTIMETER TEST.
(6) WAVEFORMS ARE TAKEN WITH SETTING CONTROLS TO A NORMAL CONDITIONS (COLOR BAR PATTERN)
(7) THIS CIRCUIT DIAGRAM IS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

LOCAL COMMANDS FOR IC601

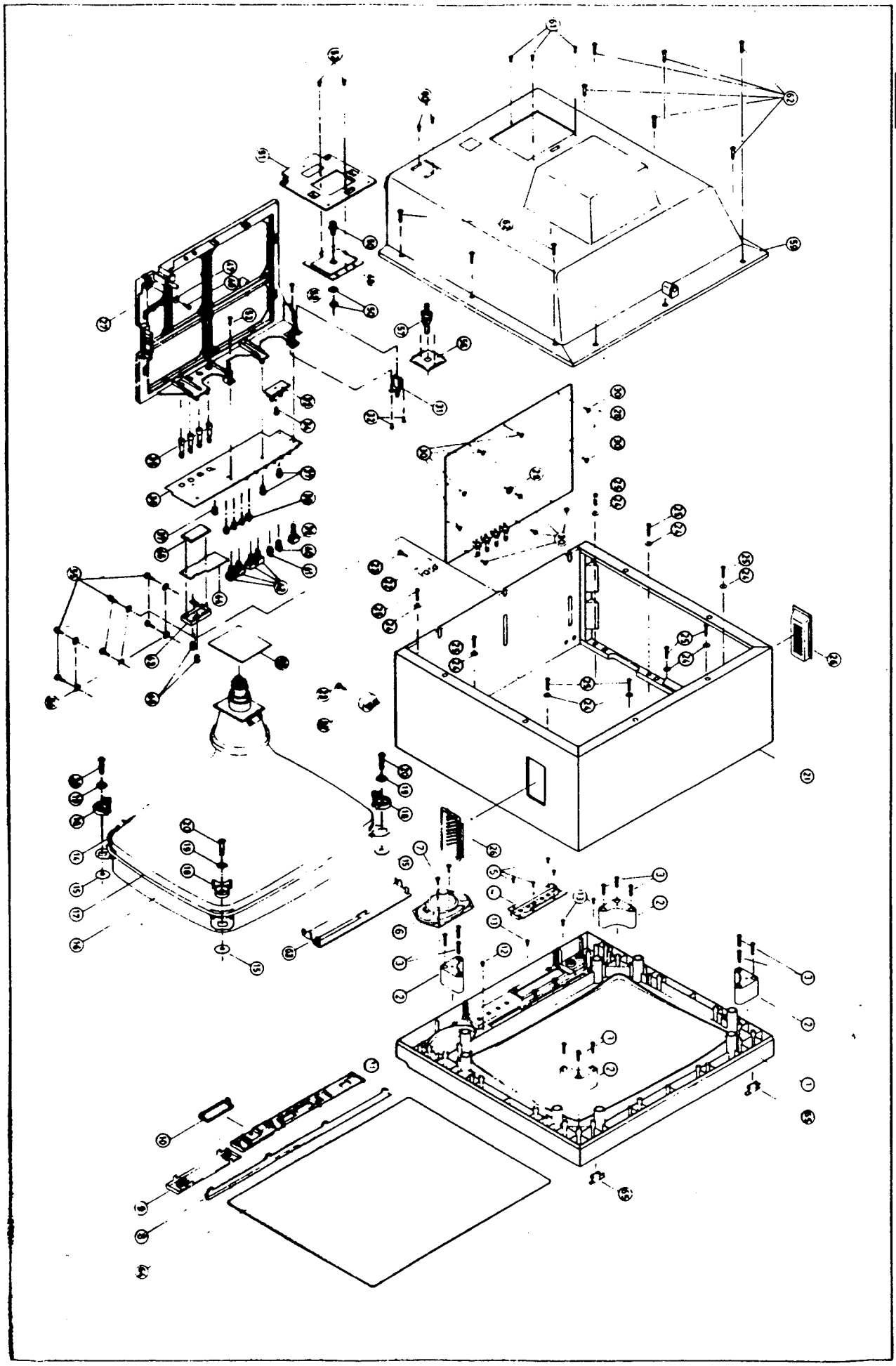
1. CHANNEL UP
2. CHANNEL DOWN
3. TUNING UP
4. TUNING DOWN
5. BAND SELECTOR
6. STAND BY
7. VOLUME UP
8. VOLUME DOWN
9. STORAGE



KONG WAH VIDEO ENGINEERING LTD.		
TITLE: SCHEMATIC DIAGRAM		
MODEL: K-3720	SYSTEM: PAL-SECAM-BG	
DRAW NO: 3720-18	COUNTRY:	
DATE: 30-4-87	REV. NO: F(22-1-88)	
DRAWN:	CHECKED:	APPRD:

K-3720 WN

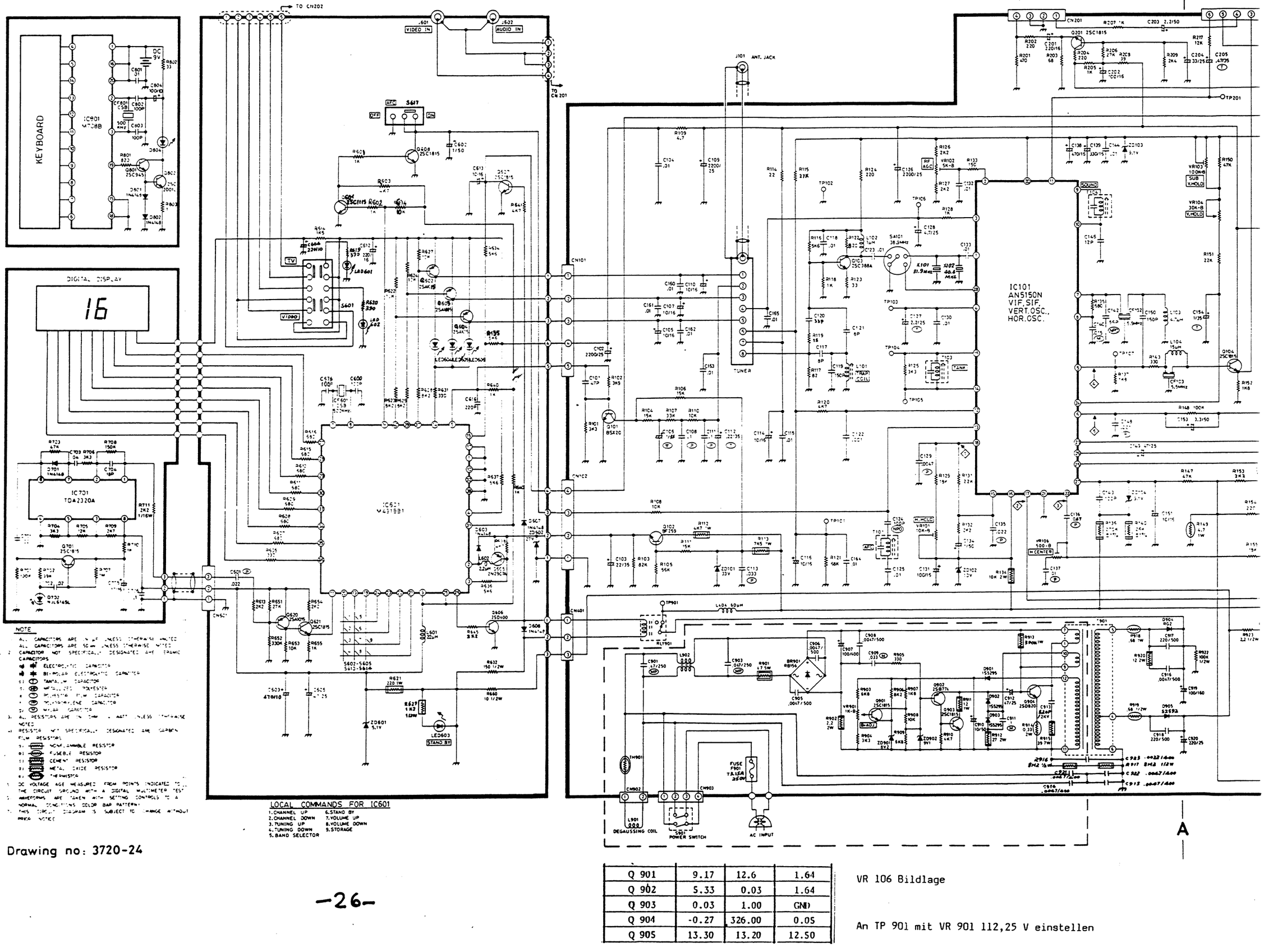
EXPLODED VIEW DIAGRAM



EXPLODED VIEW PARTS LIST

LOCATION	PARTS NO.	DESCRIPTION	QTY
1	200-372001-xx	CABINET FRONT	1
2	259-372002-01	C.R.T. MTG BRACKET	4
3	614-400130-10	SELF-TAPPING SCREW B/T 4.0x30mm	12
4	219-372008-01	PRESET CONTROL COVER 'B'	1
5	610-260106-10	SELF-TAPPING SCREW R/T 2.6x6mm	4
6		SPEAKER	1
7	612-300210-10	SELF-TAPPING SCREW W/T 3.0x10mm	2
8	469-372001-01	GLASS SUPPORTER	1
9	403-372001-01	SPEAKER GRILL	1
10	263-372001-01	CABINET FRONT LENS	1
11	230-372003-01	FRONT PANEL 'C'	1
12	609-260108-10	MACHINE SCREW B.K./H 2.6x5mm	1
13	612-260108-10	SELF-TAPPING SCREW W/T 2.6x8mm	3
14	477-371601-01	C.R.T. SPRING	1
15	334-380401-01	RUBBER WASHER	4
16		C.R.T.	1
17		DEGAUSSING COIL ASS'Y	1
18	259-371901-01	C.R.T. MTG. CLIP	4
19	437-371602-01	PICTURE TUBE WASHER	4
20	614-500430-10	SELF-TAPPING SCREW R/T 5.0x30mm	4
21	503-372002-xx	WOOD SIDE CABINET (3 FACES PANEL)	1
	504-372003-01	WOOD BOTTOM BOARD	1
	509-372001-01	WOOD TRIANGLE STRIP	4
22	207-371801-01	CABINET FOOT	2
23	614-350218-10	SELF-TAPPING SCREW S.B/T 3.8x18mm	2
24	634-133042-15	PLAIN WASHER 13.3x4.2x1.5mm THK	9
25	614-400225-10	SELF-TAPPING SCREW B/T 4.0x25mm	9
26	259-371801-01	HANDLE	2
27	220-372004-01	CHASSIS BRACKET	1
28		MAIN P.C.BOARD ASS'Y	1
29	530-140033-16	FIBER WASHER	1
30	612-300210-10	SELF-TAPPING SCREW W/T 3.0x10mm	10
31		POWER SWITCH	1
32	600-305006-10	MACHINE SCREW P/H 3.0x6mm	2
*33		AUDIO & VIDEO JACK P.C.BOARD	1
*34	612-300210-10	SELF-TAPPING SCREW W/T 3.0x10mm	1

SCHEMATIC DIAGRAM FOR PAL-SECAM-B/G SYSTEM



NOTE

1. ALL CAPACITORS ARE IN μF UNLESS OTHERWISE NOTED
2. ALL CAPACITORS ARE 50 V UNLESS OTHERWISE NOTED
3. CAPACITOR NOT SPECIFICALLY DESIGNATED ARE CERAMIC CAPACITORS
   - ELECTROLYTIC CAPACITOR
   - BI-POLAR ELECTROLYTIC CAPACITOR
   - TANTALUM CAPACITOR
   - METALLIZED POLYESTER
   - POLYESTER FILM CAPACITOR
   - POLYSTYRENE CAPACITOR
   - MYLAR CAPACITOR
4. ALL RESISTORS ARE IN OHM , 1 WATT UNLESS OTHERWISE NOTED
5. RESISTOR NOT SPECIFICALLY DESIGNATED ARE CARBON FILM RESISTORS
   - NONFLAMMABLE RESISTOR
   - FUSEBLE RESISTOR
   - CEMENT RESISTOR
   - METAL OXIDE RESISTOR
   - THERMISTOR
6. DC VOLTAGE AGE MEASURED FROM POINTS INDICATED TO THE CIRCUIT GROUND WITH A DIGITAL MULTIMETER TEST
7. WAVEFORMS ARE TAKEN WITH SETTING CONTROLS TO A NORMAL CONDITIONS COLOR BAR PATTERN
8. THIS CIRCUIT DIAGRAM IS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE

LOCAL COMMANDS FOR IC601

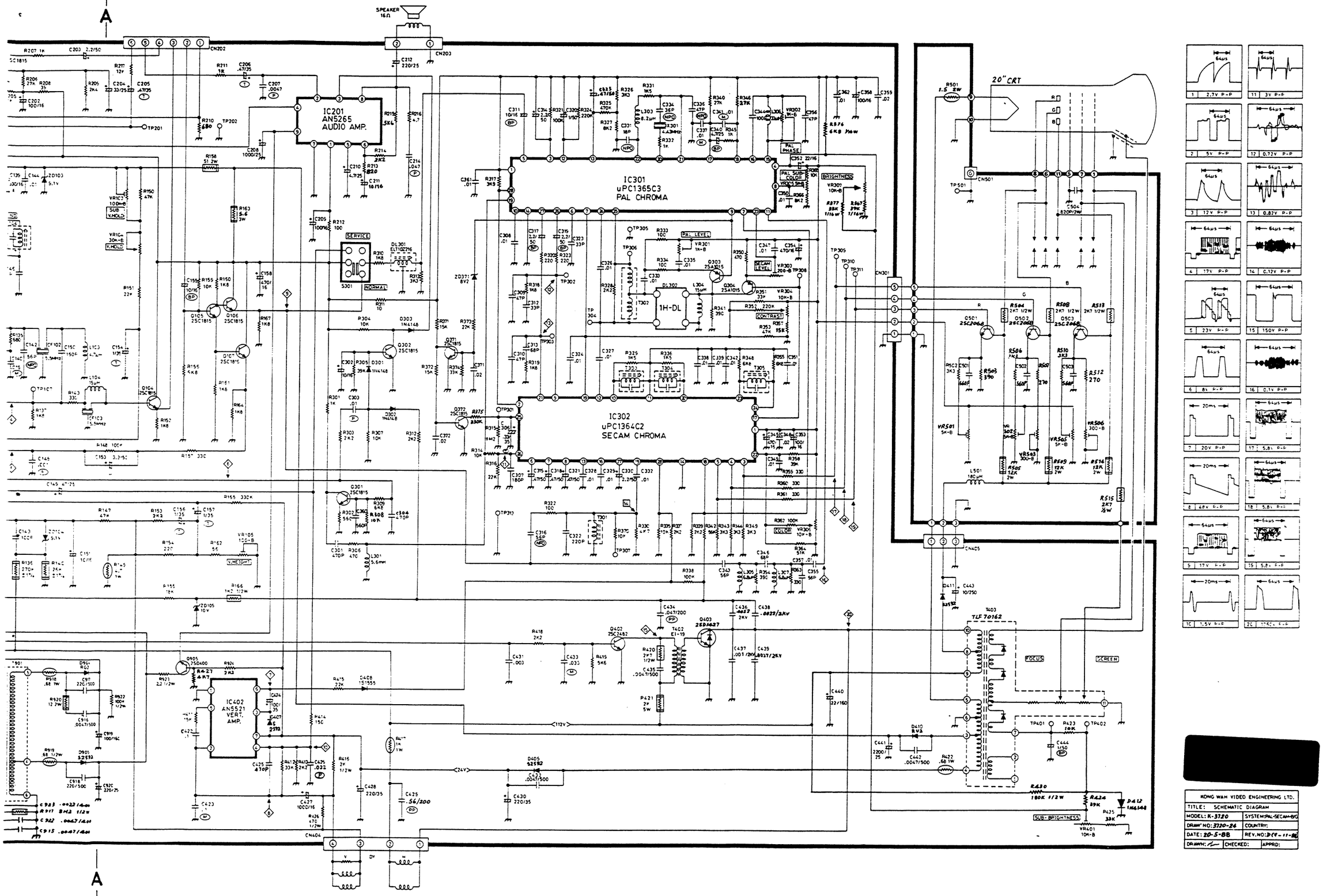
1.CHANNEL UP	6.STAND BY
2.CHANNEL DOWN	7.VOLUME UP
3.TUNING UP	8.VOLUME DOWN
4.TUNING DOWN	9.STORAGE
5.BAND SELECTOR	

Drawing no: 3720-24

Q 901	9.17	12.6	1.64
Q 902	5.33	0.03	1.64
Q 903	0.03	1.00	GND
Q 904	-0.27	326.00	0.05
Q 905	13.30	13.20	12.50

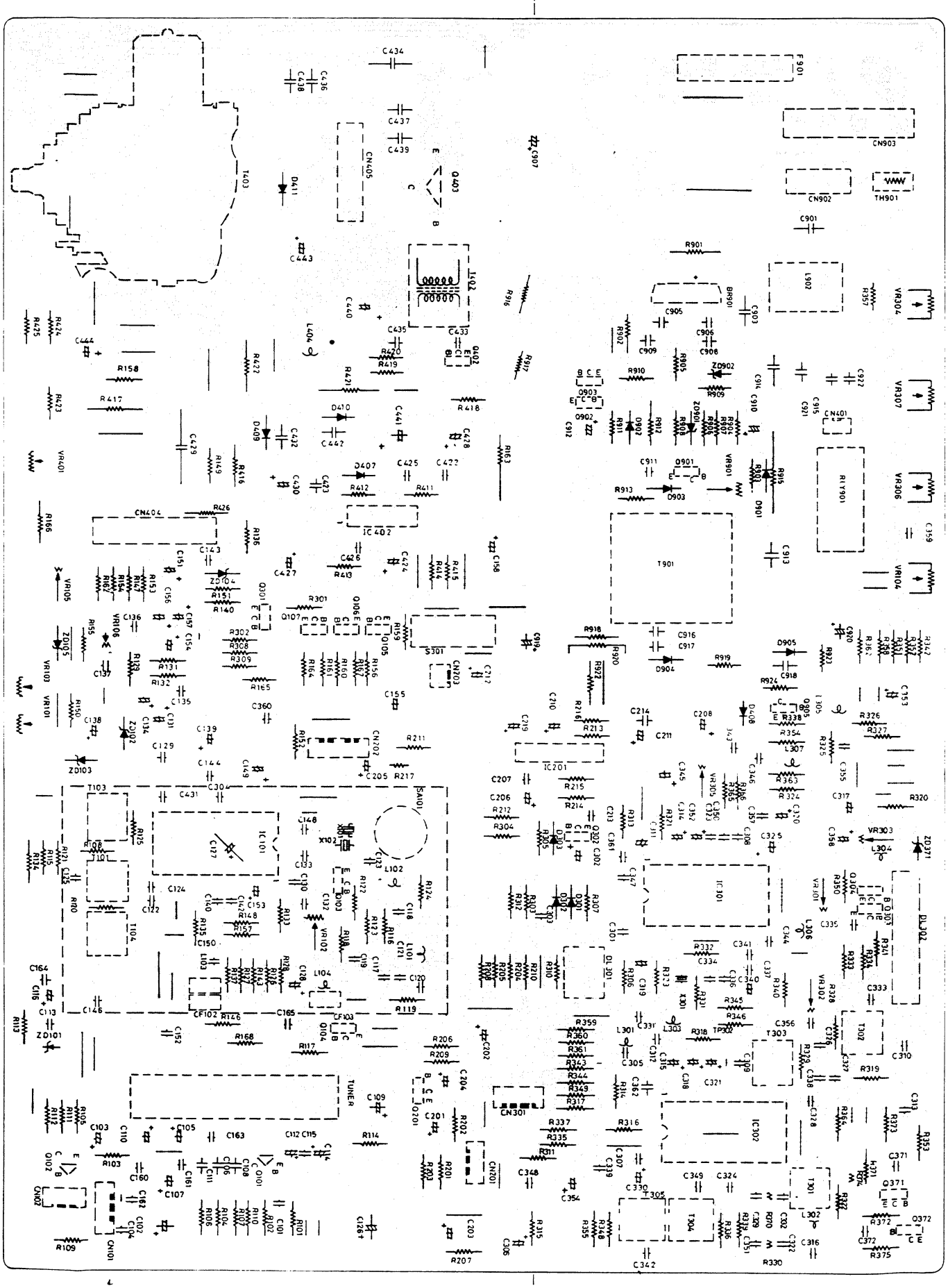
VR 106 Bildlage

An TP 901 mit VR 901 112,25 V einstellen



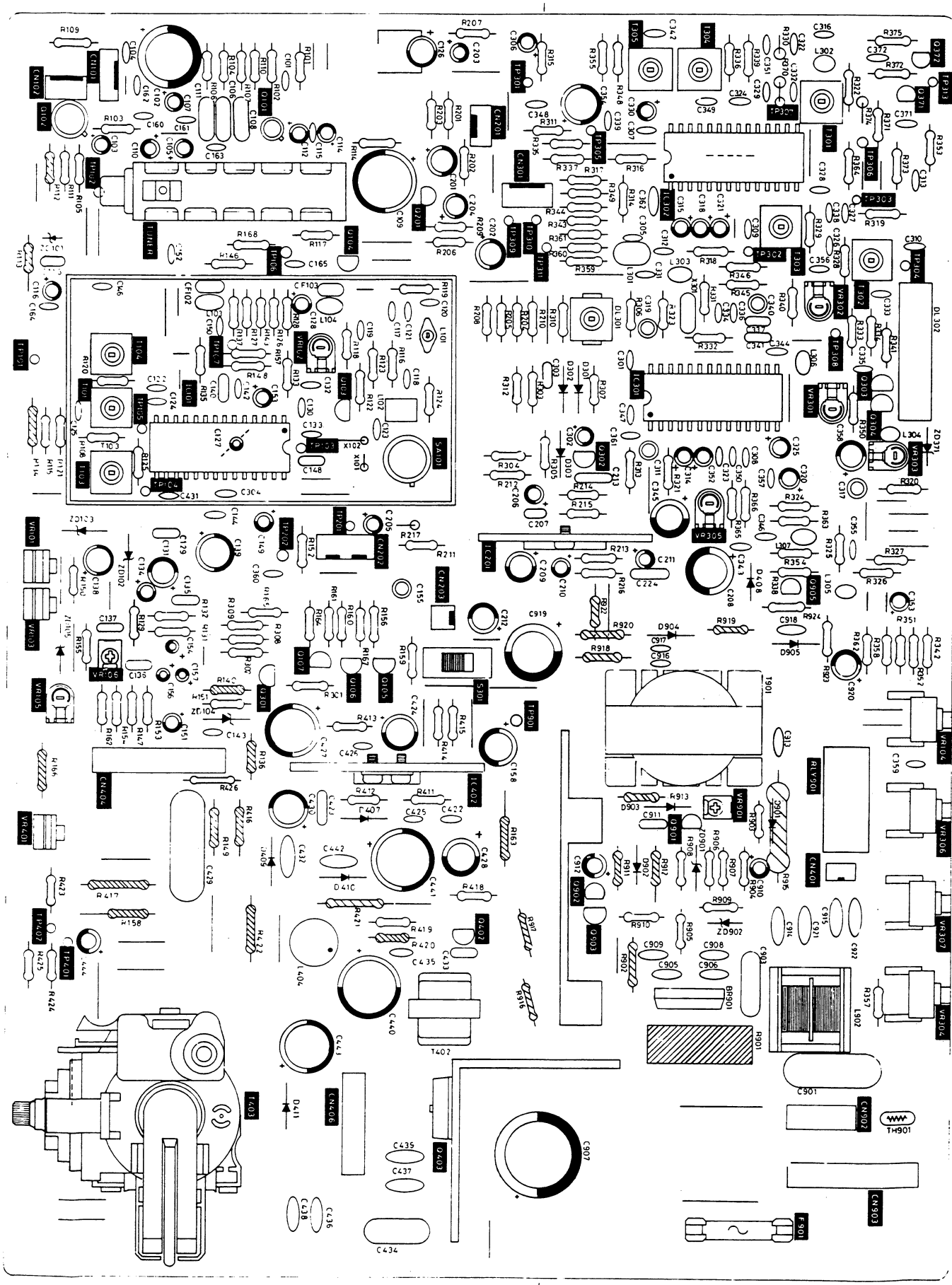
[redacted]

KONG WAH VIDEO ENGINEERING LTD.		
TITLE: SCHEMATIC DIAGRAM		
MODEL: K-3720	SYSTEM: PAL-SECAM-B/G	
DRAWING NO: 3720-26	COUNTRY:	
DATE: 20-5-88	REV. NO: 09-11-88	
DRAWN:	CHECKED:	APPRD:



K-3720 WA Trs Main PCB

Bottom view component Diagram



K-3714 WA/K-3720 WA Trs Main PCB

Top view component Diagram